THE IRON AGE

New York, July 10, 1924

ESTABLISHED 1855 VOL. 114, No. 2

Car Wheel Foundry with Parallel Motions

Six Straight-Line Conveyors to Handle Molds, Drags, Copes and Chills and Sand—Continuous Molding Operations

CONTINUOUS molding units provided with mechanical equipment for the manufacture of car wheels have been installed in several foundries in the past three or four years and their operation has proved successful, both from the standpoint of economy and in relieving the workers of considerable extremely arduous labor required in hand molding and in handling work in connection therewith.

A foundry in which former methods and equipment have been replaced with machine molding and mechanical handling of all molding operations is the Rochester, N. Y., works of the National Car Wheel Co. In this plant a molding unit for the manufacture of chilled iron car wheels and having a capacity of 400 wheels in eight hr. recently has been placed in operation, which differs in several important details from somewhat similar units in use in other car wheel foundries. Conspicuous features of the molding unit include its compactness, an elevated shake-out grate and gravity conveyors for conveying the cope and drag flasks back to the molding end of the unit.

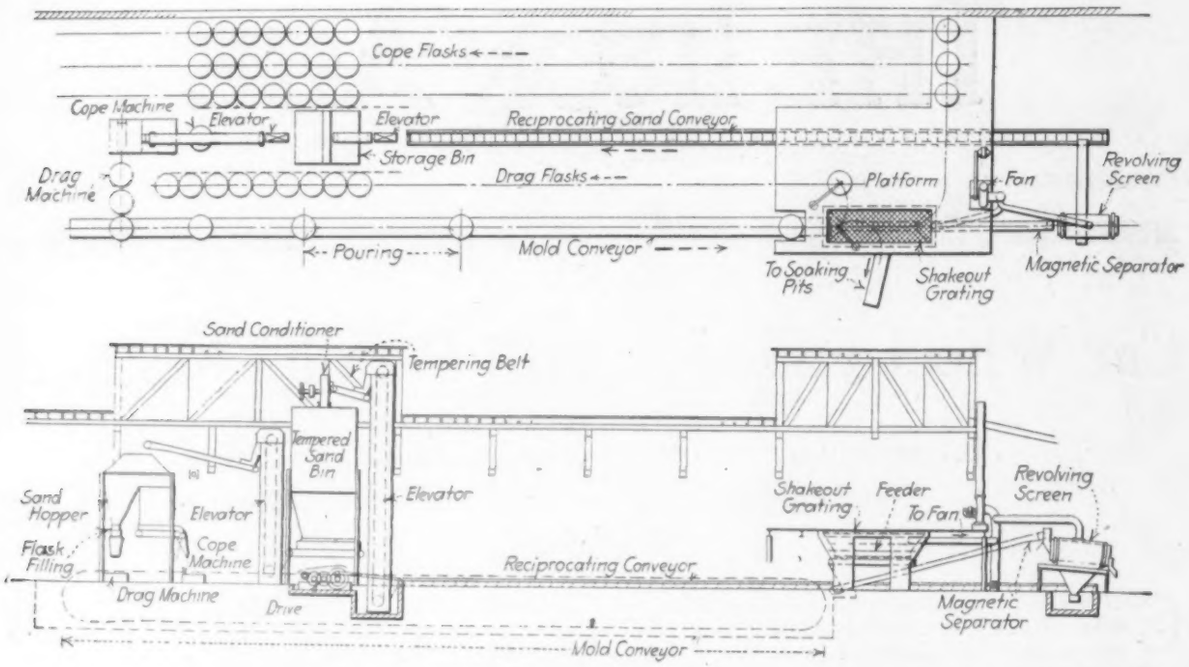
Reciprocating Conveyor In a Concrete Trough On a Level With the Foundry Floor Carries Sand From the Shake-Out Back to the Sand Storage Bin. The sloping cope flask conveyor appears at upper right

Straight-line parallel conveyors are used, so that turntables and transfers are avoided, the arrangement providing an economic method of handling. On one side is a mold conveyor and in a parallel line in the order named are a return gravity conveyor for the drag flasks, a reciprocating sand conveyor and three gravity return conveyors for the cope flasks. With this arrangement there is a constant stream going in the two directions, the finished molds moving down the mold conveyor and the empty flasks and molding sand returning in the opposite direction.

There are two molding machines, a roll-over machine for the drag and a plain jolt pneumatic machine for the cope, both of the Herman type, the latter machine having a stripping attachment. These machines are located at the end of the unit between the return flask conveyors and in line with the sand conveyor. After the drag mold is made it is turned over and a pneumatic hoist places it on the mold conveyor, located 2 ft. above the foundry floor. This is a flat top plate conveyor approximately 110 ft. long. Its top is cast iron sections 2 ft. long running on wheels on 2 ft. centers on steel rails. The conveyor returns through a trench under the floor. The movement of the conveyor is intermittent. It is propelled 4 ft. and stops until another mold is poured. This movement is effected by a 10-in. air cylinder that applies its power to the upper strand and is supplemented by a 6-in. air cylinder for the returning strand.

When the drag half of the flask has moved along the conveyor 12 ft. it is in a position directly opposite the cope flask. The latter then is superimposed on the drag flask, the mold is closed, clamps are applied and the mold is ready for pouring. Four operations on the mold is ready for pouring. Four operations on four different molds are performed in unison when the mold conveyor is standing still. These are (1) putting a drag flask on the conveyor, (2) placing a cope on a drag, (3) pouring and (4) lifting a flask from the conveyor to the shake-out grating.

The shake-out grating, 16 ft. long and 5 ft. wide, at the end of the mold conveyor, is located on a platform 9 ft. above the foundry floor. When the mold



Plan and Sectional Elevation of the Equipment, Showing the Arrangement of Four Parallel Conveyor Systems, Three Working Toward the Left and One Toward the Right. Three lines are used for the cope flasks, so that the chills may have time to cool

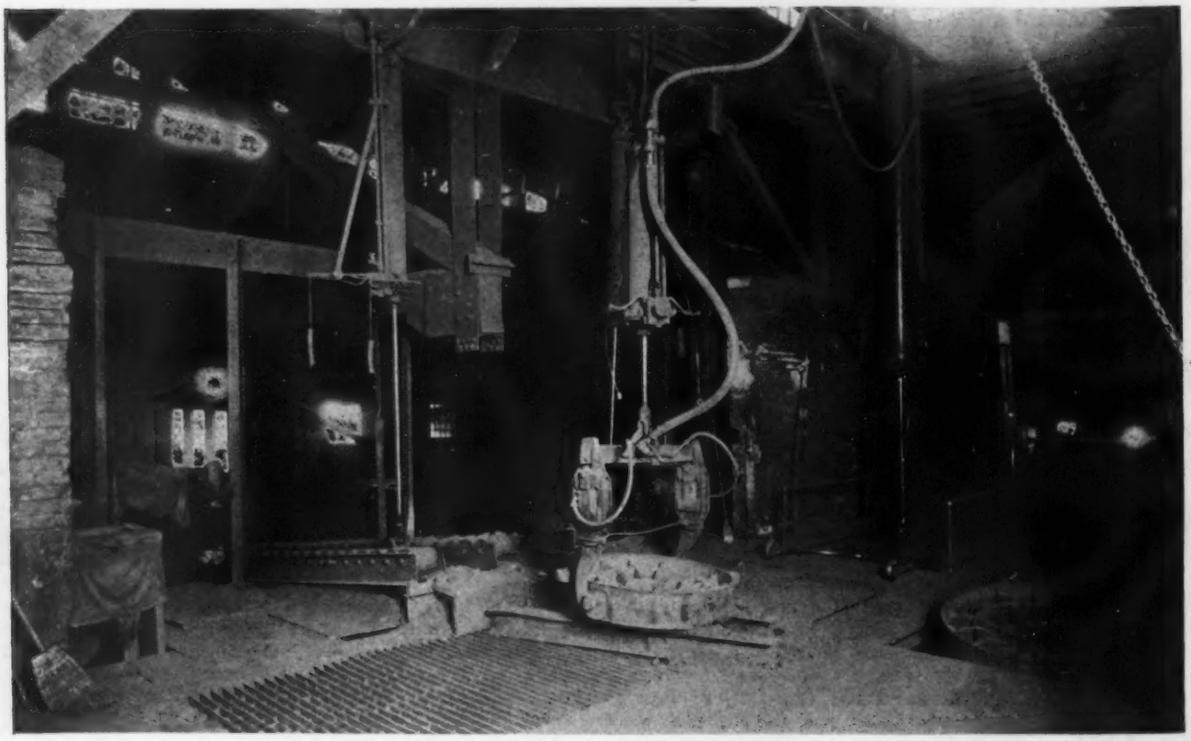
reaches the end of the conveyor it is lifted to the platform by a pneumatic hoist. Attached to the hoist is a Stoney shake-out bail which shakes out the mold. The casting is placed on a gravity roller conveyor extending off to one side, nearly at right angles to the mold conveyor, and is carried to the soaking pits.

After shaking out, a hoist carries the cope flask and chill over the platform to one of three lines of gravity roller conveyors. As the cope and chill are together, the three conveyor lines are provided so that there will be a sufficient number on the conveyors to give the chills time for cooling before being used again. After the drag flask is shaken out, a hoist drops it through a hole in the platform floor onto a single line gravity conveyor. The flask and cope gravity conveyors have channel framework and cast iron rollers.

Steam and gases are removed from over the shake-out grating by means of a blower system and are carried up to the roof. The provision of this blower adds much to the comfort of the workmen.

Handling the Sand

Sand shaken out from the molds drops into a concrete shake-out hopper underneath the shake-out grating. From there it is fed by a cutting feeder and belt conveyor directly to a revolving screen. Above the screen is a hood and an exhaust system is provided, which draws out the dust and discharges it through the roof. This exhaust system also carries the dust from the shake-out hopper.



Elevated Shake-Out Platform, Grating and Shake-Out Bail. The drag flask is dropped through the hole at the right, onto the drag conveyor

General View of the Molding Unit From the Shake-Out Platform. At the left (under the electric bulb) is the mold conveyor, then the gravity drag conveyor (loaded) and sand conveyor (in the pit). At the right is the triple gravity cope and chill conveyor

From the screen the sand passes over magnetic separators, from which it is delivered to a reciprocating conveyor approximately 110-ft. long that is located in a concrete trough on a level with the foundry floor. Most of the cooling, mixing and tempering of the sand is done in this conveyor, which is provided with hinged paddles on 20-in. centers, moving with a 28-in. stroke. These paddles are in position on the forward stroke, moving the sand forward and mixing it, and swinging idly over the sand on the return stroke. Water is added at two points on the conveyor. The reciprocating motion is accomplished by a motor-driven crank shaft.

The reciprocating conveyor discharges the sand into a vertical bucket elevator which lifts it 35 ft. to a short tempering belt and sand conditioner at the top of a 58-ton storage bin. The belt delivers it into this bin, where it remains 2 or 3 hr. before being used.

From the sand storage bin a knife cutting feeder

Sand Storage Bin of 58 Tons Capacity, Sand Elevator, and the Copes and Chills Returning on the Gravity Conveyor

under the bin delivers the sand to a vertical bucket elevator and from that it passes over onto a short belt conveyor which dumps it into a 16-ton service hopper. Both molding machines are fed by apron feeders from this hopper. By pushing a button, the operator secures a constant stream of sand through the feeders. New sand is added by dumping a few shovels of it on each mold as it passes along the mold conveyor, so that there is always new sand in the system. The sand handling system has a capacity of 20 to 25 tons per hr.

The cupola is located about 50 ft. from the pouring

Drag and Cope Machines and the 16-Ton Service Hopper Which Serves Both Machines Through Apron Feeders

zone of the mold conveyor. The ladle is carried on a truck that runs on an industrial track and holds sufficient iron to pour one mold.

The mold conveyor and gravity conveying equipment were designed and built by the National Car Wheel Co. under the direction of H. E. McClumpha, general superintendent. The C. O. Bartlett & Snow Co., Cleveland, furnished the sand handling equipment.

A judgment of $60,000 obtained by the Italian Government against the Wilkoff Iron Co., Youngstown, Ohio, was set aside by the United States Circuit Court of Appeals sitting at Grand Rapids, Mich., July 1. The Italian Government alleged it had contracted to purchase $60,000 worth of scrap steel from the iron company during the war and paid for it in advance. When it was ready to take the steel, it was contended, it was found to have been sold elsewhere.

The New York Central Railroad has placed an order with the Brown Hoisting Machinery Co., Cleveland, for an ore handling bridge to be erected in Ashtabula for the Ashtabula & Buffalo Dock Co. to replace one recently blown down. It is expected that two or three other ore bridges will be purchased shortly to replace bridges on Lake Erie ore docks that have been wrecked in recent storms.

Synthetic Gray Iron and Mild Steel

A series of tests in the making of synthetic cast iron in a commercial electric furnace has been completed by engineers at the Seattle, Wash., experiment station of the Bureau of Mines. Both synthetic gray iron and mild steel were produced in alternating runs without trouble. Miscellaneous steel scrap of all kinds was charged into the furnace to produce various grades of iron. The results show that, under the conditions in this foundry, the synthetic product can compete with cupola iron, and is superior in quality and strength. These results will be applied in the melting of sponge iron, and in the melting of scrap at foundries. These experiments were made in a commercial direct-arc acid-lined furnace of 3000-lb. capacity. Soft machinable iron with a transverse strength of 5600 lb. on a standard bar was repeatedly made. Without the opportunity for direct comparison, it seems apparent that carburization is more difficult in an acid-lined furnace than in a basic hearth. Retort carbon, clean brushed coke with about 14 per cent ash, and coke breeze containing considerable ash and dirt were compared as carburizers, with the result that the retort carbon was found to be decidedly superior to the crushed coke and the coke breeze just as definitely inferior to the other two. Except for its bulkiness, which makes charging more difficult, tin plate scrap was melted as readily as other steel scrap. Under normal commercial conditions, excepting those where some unusual trouble or delay was encountered, the average power consumption was 710 kwhr. per ton. That figure could be reduced at least 100 kwhr. under more nearly ideal conditions. All these results corroborate exactly the results obtained in experimental work on synthetic gray iron previously made by the Bureau of Mines.

Seminar Course in Metallurgy

In order to assist metallurgists in their everyday problems and to enable them to secure advanced degrees without absence from regular duties, the University of Wisconsin, Madison, has established a seminar course in metallurgy at Milwaukee. Graduates from many colleges will, it is expected, avail themselves of the course. All are employed in Milwaukee and perform research work in their shop laboratories.

R. S. McCaffery and J. F. Oesterle of the engineering college have supervision of the seminar. Each visits Milwaukee on alternate weeks, holding classes on Friday evening and devoting Saturday to the inspection of experiments.

Experimental work by metallurgists on reduction of iron oxide by carbon monoxide is progressing rapidly at the Northwest experiment station of the Bureau of Mines at Seattle, Wash. Reduction tests have been made at temperatures varying from 700 to 1000 deg. C. at times from 1 to 5 hr. on sizes up to 2 in. Preliminary observations indicate that size has more influence than any other factor on rapidity of reduction. A piece 2 in. in diameter was not completely reduced at 900 deg. C. in 5 hr. Magnetite reduces only about half as fast as dense hematite. A new and apparently accurate method has been developed for the determination of metallic, ferrous and ferric iron in the same sample.

A copiously illustrated pamphlet has just appeared, issued by the Union Carbide & Carbon Corporation, 30 East Forty-second Street, New York, which gives complete information concerning the companies, about 25 in all, which form this large corporation. A chapter is devoted to each company, with illustrations of the plants and some of the equipment. A comprehensive map is also included, giving the location in the United States and Canada of plants and factories, of sales offices and of warehouse stocks, the grand total being 827 units.

Decided Stand for Merchant Marine

Chairman Thompson of Shipping Board Gives His Views as to Present Status and Policies—Why the Jones Act Has Not Brought Desired Results

BY L. W. MOFFETT

WASHINGTON, July 8—Making the United States "ship-minded" is proving a difficult task. It has been an extremely hard effort since the Civil War. Obstacle after obstacle, real or fancied, arose. Costs of operation, including wages required by able seamen, necessity of revising navigation laws, claims of violating treaties, propaganda by foreign interests, often supported by groups of domestic interests and other elements, invariably have cropped up whenever anything has been done to establish an American Merchant Marine.

There can be no doubt that sincere opposition has come from time to time from strongly American sources to defeat plans proposed in either legislative or executive branches of the Government to build up a merchant fleet. This merely has represented a frank division of opinion, but easily the greatest foe to the building up of a privately owned American Merchant Marine has been the widespread indifference toward it. Extremely important as a merchant fleet is to the carrying on of international trade, and tremendously vital as it is as an arm to the naval fleet in times of war, the question has been given but relatively little constructive thought by the business, financial and agricultural communities of the country. There always have been, and are now, earnest groups in these and other branches striving to create intelligent interest throughout the country in an American Merchant Marine, and despite the many plans advocated for its upbuilding, it remains a fact that these groups, taken as a whole, have reflected views that have been refreshing because of their approach to unanimity. By no means does this statement apply to all of the attempts made from all sources, genuine or spurious, to establish a Merchant Marine. But those who have been earnestly engaged have accepted that as the end and have minimized the means so long as they considered it to be constructive and fair. Yet in the face of their hard work they have seen the American Merchant Marine dwindle to almost nothing. They have witnessed the spectacle of American foreign trade carried in American bottoms shrink from the remarkably high total of 90 per cent to 8 per cent.

Ships Forced on the United States

The world war absolutely forced ships upon the United States. The result is it has on its hand a merchant fleet, poorly balanced, it is true, but certainly providing a nucleus for a well organized privately owned Merchant Marine. The result of these ships being forced upon the hands of the Government is that while the curve showing foreign trade carrying American bottoms has fluctuated since the world war, it has shown a sharp rise at least above the low point of 8 per cent, which was maintained at the outbreak of the world war. And since these ships have been literally pushed into the hands of the Government, something had to be done about it. One of the greatest things that was done was the passage in 1920 by Congress of the so-called Jones Merchant Marine act. It obtained its name from the fact that its principal author was Senator Jones of Washington, who has always worked most intelligently and ardently for a privately owned Merchant Marine.

Passing by the point that a great piece of legislation like this may be offset to an appreciable extent, at least, by such laws as the La Follette seamen act, the fact remains that there are many who are firmly of the opinion that if all of the provisions of the Jones Merchant Marine law were put into force, nothing could prevail against the building up of the privately owned Merchant Marine. Two of its most important sections still are in suspension. One, known as Section 28, provides for lower railroad freight rates on export shipments when carried in American bottoms than when carried in foreign bottoms. The other, known as Section 34, would reestablish the old principle under which the American Merchant Marine of the Yankee clipper days was built up. This provision would apply discriminating import duties on goods carried in American ships.

Old Objections Renewed

Precisely like every other effort to build up an American Merchant Marine, these sections have created strong opposition, both in the United States and abroad, with many of the cut-and-dried objections reheated and rolled out to the American consuming public. For instance, the discriminating duty clause, it has been pointed out, and the State Department has accepted the objection as sound, would violate commercial treaties. There could be no doubt that application of this section overnight would violate commercial treaties. Those in favor of the section, however, make the argument that it is customary and altogether right to give notice of abrogation of such treaties and then upon their expiration to put the law involved into effect. They do not take seriously so-called efforts of international complications and make further contention that they do not recall any important foreign mercantile nation foregoing any of its fundamental prerogatives to put its flag on the seven seas. Section 28 had been ordered into effect by the Shipping Board, but some of the American railroads and many shippers, together with the Interstate Commerce Commission, and with the inevitable foreign propaganda, have caused a suspension of this section. Another suggestion to aid American Merchant Marine is to extend the coastwise laws to the Philippine Islands.

Whether or not any of these suggestions and proposals go into effect, or whether, consistent with many other plans, including a subsidy, will end only in talk remains to be seen. The fact cannot be denied, however, that iteration and reiteration of the subject is gradually making the United States more "ship-minded."

Effects of Discussion

Letting pass the political phase of the Republican and the Democratic Merchant Marine planks, it seems reasonable that the discussion coming from them during the campaign may turn thoughts of the public more and more to an American Merchant Marine. And even more immediately practicable, limited as it may be in its effect, Congress before its recent adjournment enacted legislation which brings the Merchant Marine idea to the steel manufacturer, engine builder, and shipyard owner. This legislation provided for the lending by the Shipping Board of money for the installation of Diesel engines in American ships.

Certainly the requirements of steel and machinery for the maintenance of an adequate American Merchant Marine are an extremely important consideration for the steel and machinery manufacturers, exactly as it is for the cotton grower and a vast number of other American producing units.

Equally as important, if actually not more important, would be the fact that the American shipper would have at his service American-flag vessels, and consequently protection from excessive ocean freight rates that can be and have been demanded by foreign

vessels in the absence of American shipping. Obviously this attitude in the past has shut out American business interests from a vast amount of foreign trade.

With the home market becoming more easily absorbed by reason of plant expansions, the importance of export trade constantly is growing, and tied in with this is the growing importance of the American Merchant Marine.

Commissioner Thompson's Views

Commissioner Frederick I. Thompson of the United States Shipping Board made these points clear in the course of discussing the American Merchant Marine with THE IRON AGE. Mr. Thompson comes from Birmingham, Ala., and appreciates the importance of such a fleet, not only to the iron and steel industry of that territory and other sections of the country, but to all enterprises, both agricultural and manufacturing. Manifestly, he also stated the importance of such a fleet as a naval auxiliary. Mr. Thompson is publisher of the *Age-Herald* of Birmingham, and of the *Register* and *News-Item* of Mobile, Ala., and by reason of this association has been in close touch with important public issues.

Taking a broad view of the question, rather than making a narrow observation as to the cost of the Government for the upkeep of its ships, Mr. Thompson said:

"The Merchant Marine enterprise is costing the United States from $35,000,000 to $40,000,000 per year. This takes into account the loss in operation, but does not include those elements of expense bearing on liquidation of a war enterprise, but this loss is spread equally among all taxpayers of the United States. Necessarily this takes into account the farm producing class, manufacturers, laborers and others. Many of these laborers are engaged in plants which supply an export demand, and if this market should be shut off it might mean that these men would be thrown out of employment. A nation can control ocean transportation only by having its flag on the seas. Congress can regulate purely domestic enterprise. The seas, however, are international. Let us give a glance at the Merchant Marine situation.

"There are only about 20 American flag ships in foreign trade operated by private owners. This, of course, does not include intercoastal and West Indian trade. Of the 20 ships under private operation, one-half are operated by private owners who operate more foreign ships than American ships. Therefore, in ocean conferences foreign interests dominate. The United States Government, however, operates nearly 400 ships in foreign trade and therefore is in a position to have a voice in setting ocean freight charges under which our export commerce moves, and is the protecting influence against excessive ocean transportation from the United States. If the Government did not operate these ships, foreign nations would control the transportation charges on American products to foreign countries. There is not a shadow of a doubt that if the Government did not regulate the rates, foreign ships would increase the ocean charges and collect on our international commerce a sum many times what the taxpayers are paying to protect the American commerce.

Under Private Ownership

"I do not believe that for five or 10 years there can be an adequate Merchant Marine under private ownership and operation. The whole business and financial structure is against it."

There are those who differ with Mr. Thompson and believe that the Government fleet can be turned into the hands of private owners at an earlier date than he suggests, but they are in agreement with him that if it requires such a period it is well worth waiting for.

Mr. Thompson has been one of the strongest advocates of Section 28 of the Jones act and always has strongly urged the abrogation of preferential contracts where they exist between foreign shipping interests and American railroads. He also has strongly favored the application of Section 34 and this view has been shared by other members of the board, but it is understood that the administration still is strongly opposed to this section.

Recommendations made by the board urging the application of Section 34 have been rejected in the order named by President Wilson, President Harding and President Coolidge.

Mr. Thompson along with other members of the board appreciates the importance of making the United States "ship-minded" and constantly is urging upon American shippers the importance of giving preference to American flag vessels.

Indicative of the effect this has had, Mr. Thompson pointed out that at the time the board instituted liner services from the Gulf, the British carried approximately 90 per cent of the cotton movement from the Gulf in British bottoms and in American bottoms about 10 per cent.

Carrying Cotton

As the service was perfected, Mr. Thompson said, the board has never let a month pass that its vessels have not carried the major portion of the cotton movement from the Gulf in American flag ships. One month it ran as high as 56 per cent of the movement.

"Rather than turn over some of American commerce to foreign flag ships," said Mr. Thompson, "I would go ahead and use the available appropriation as long as it would last, and when it was exhausted I would go to Congress and say 'now it is up to you, gentlemen; it is your responsibility; you can stop the enterprise or go along with it.'"

Mr. Thompson said that he had never seen Congress turn down the money to keep the enterprise going, but that it has been willing to do nothing to meet the wishes and suggestions of the board.

"If I had my way," said Mr. Thompson, "I would let the losses be as they are now and extend the volume of commerce of this country in American flag ships and to come on always toward the goal set by Congress itself of seeing that the major portion of the American commerce shall be carried in American flag ships. That is the goal; that is the mandate of Congress.

"As one of my newspapers is doing, we are developing deliberately a maximum standard and making an investment in good will and establishing that to a degree we think it should be established and we do not regard that as a loss."

Showing the necessity of having American ships available, Mr. Thompson said:

"When the British dominated the cotton movement from the South and the war broke out and they applied their ships to war purposes, the great commodity (cotton) of my section dropped to 5c. per lb. directly because there was no transportation for our markets and bankrupted practically every cotton planter in my section of the country. If a war should break out tomorrow there would be no such condition existing because we would be prepared to carry that product to the world markets."

American Exports Carried

Mr. Thompson estimated that the average of American exports carried in American ships is around 25 per cent of what he called the general cargo movement. This average is estimated by some to run as high as 47 per cent when it takes into account such important items as oil, carried in Standard Oil tankers, and steel carried in ships of the United States Steel Products Co. Mr. Thompson, however, did not take into account this movement.

Discussing the importance of Section 28, providing preferential rail rates on American products for export in American bottoms, Mr. Thompson said that President Homer L. Ferguson, of the Newport News Shipbuilding & Dry Dock Co., had told him that steel could be delivered in Cuba by way of Newport News practically as cheap from the Pittsburgh district as it could be bought from the Pittsburgh district and that if a man wants to prepare his ships in Cuba he can do it and get his base material as cheaply as it can be obtained at Newport News. The preferential

rate, said Mr. Thompson, would open the world markets to the American producers.

Mr. Thompson was asked if it had not been the generally admitted policy of the Shipping Board and the Emergency Fleet Corporation to leave the cream of the trade routes and traffic to the private lines and to do nothing that would injure any of these lines during the time that the Government was operating its own vessels, even though such a policy would increase the losses or expenses of the Shipping Board.

"I have never understood we have had private American flag operation, for the reason they have not been adequate in number or in major operation," said Mr. Thompson. "But I would read into the statute itself a program of non-interference; if there was an American flag service established on a competing trade route, it would not be my idea we should engage in Government operation in competition with the American flag operator, but should encourage him and help him."

New Rates on Iron and Steel Expected

Refusal of Interstate Commerce Commission to Approve Schedule to Be Followed by Revised Proposal— Important Issues Involved

WASHINGTON, July 8.—Refusal of the Interstate Commerce Commission to permit the railroads to put into effect proposed changes in iron and steel rates, both in carloads and less than carloads, between points in the Pittsburgh district and adjacent territory in Pennsylvania, New York, Ohio, West Virginia, and Maryland, is expected to be followed by the filing by the railroads of new tariffs which the commission opinion made it plain it would consider.

The railroads claimed that the purpose of the changes was to revise substantially the entire short haul structure instead of only those rates which violate the fourth section. In finding that the proposed changes as a whole were not justified, the commission said, however, that "some increase in some of the rates for which class rates are proposed to be substituted may be proper." For example, it pointed out, it was proposed to increase the rate from Canton and Massillon, Ohio, to Grove City, Ohio, from 9.5c. to the fifth class basis of 20.5c. This proposal, the commission said, is not approved on the record but it stated that it would seem that the present rate might properly be increased to 11c. along with other rates of like amount. It was added that there are other similar situations.

The case involves extremely important issues as they increase or decrease the competitive ability of iron and steel producers and consumers in affected areas. By reason of this the next suggested move is being awaited with a great deal of interest. The changes proposed more increases than they did decreases and the major portion of the increases amounts to 15.8 per cent, though some are less and some are more, while in instances reductions were proposed.

Position of the Railroads

The railroads contended that with the sharp commercial and carrier competition it is necessary to maintain the existing relationships.

"Throughout this territory," the commission said, "there are hundreds of competing producers and users of iron and steel articles, and the importance of substantially continuing proper relationships is unquestionable. Thus, as an example, if the rate from Youngstown to Pittsburgh, which in conjunction with the rate from Cleveland to Youngstown makes a lower combination than the through rate from Cleveland to Pittsburgh, were increased as here proposed without a similar increase in the rate from Johnstown to Pittsburgh, the Youngstown producer would be under a disadvantage of 1.5c. in competing with the Johnstown producer at Pittsburgh."

Pointing out that the proposed adjustment must be considered in its entirety, the commission says:

"The territory here in question, exclusive of that in New York, approximates in area what is known as the Pittsburgh and middle steel-producing district. The greatest consumption of iron ore occurs in this district, and in turn its production of iron and steel exceeds that of the rest of the country. In consequence it originates an enormous tonnage of these articles. Much of this tonnage moves for short hauls between producers and consumers in this territory. In 1922 approximately 41,800,000 tons of ore originated in the ranges of Minnesota, Wisconsin, and Michigan, of which about 31,000,000 tons were consumed in this district and 3,500,000 tons at Buffalo. The annual productive capacity of steel ingots in this district in 1920 was 30,600,000 tons, or about 66 per cent of that of the entire official territory. The productive capacity for the country as a whole is not shown for 1920, but for 1921 it was about 58,600,000 tons and about the same in 1922. The second largest producing center in official territory is that around Chicago, and the third is Buffalo. The average loading of iron and steel articles is about 80,000 lb. per car.

Some of the protestants have, by active campaign to that end, substantially increased their average loadings in recent years. One of them shows that the average loading of its 13 subsidiary companies increased from 69,200 lb. in 1911 to 94,300 lb. in 1922. The average loading of wrought pipe manufactured by one of these subsidiaries at various points in this territory gradually increased from 43,200 lb. in 1903 to 78,200 lb. in 1922. The averages for these and the intervening years are based on annual shipments of from 28,000 to 50,000 cars. It is roughly estimated that the proposed rates would result in a net increase in transportation costs on all traffic in the affected territory of $750,000 to $1,000,000 annually."

Proposed Rates on Pipe

The railroads proposed to increase the rates on wrought pipe, but not on cast iron pipe. The commission stated that under the circumstances which it discussed, it was not convinced that the situation with respect to the rates on cast pipe and on wrought pipe was sufficient to condemn the proposed rates on the latter.

One result of the general proposal, it was stated, would be the increase in the Pittsburgh-Cleveland combination rates applicable over certain routes under which a large tonnage moves. The opinion says that it is estimated that from 80 to 85 per cent of all the tonnage of certain companies moves from Pittsburgh to Cleveland on the 19c. rate.

Protest against this proposal was made by contrasting the percentage relation which the present combination bears to the through fifth class rate between Pittsburgh and Cleveland, with the percentage which rates maintained from other steel producing districts in official territory to consuming points bear to the fifth class rates between the same points. After taking up the numerous other angles involved, the commission said that there was sufficient evidence to warrant it in withholding general approval of the class rates which were proposed but in ordering the schedules cancelled it did so without prejudice to the filing of new schedules in conformity with views expressed.

Setting Machine Tools for Short Jobs*

Examples of Economical Handling of Work Requiring Lathe Set-up—Savings Effected by Providing Operator with Sketches and Complete Data

BY ALBERT A. DOWD†

IN considering the economies which can be effected in setting-up lathe work it should be noted that on this type of machine there is not usually much special equipment required, except when special castings in lots of two or three at a time are to be machined. When special forms are to be cut and a form tool is required, the set-up man should of course take this into consideration and make suitable sketches so that the tool will be ready when the job is placed in the shop. For thread-cutting operations, when required, the proper gears can be calculated in order to save trouble in the shop. Of course this is necessary only for special threads. It should be the duty of the set-up man to anticipate the needs of the shop man and furnish the latter with any information which would ordinarily require an arithmetical or geometrical calculation.

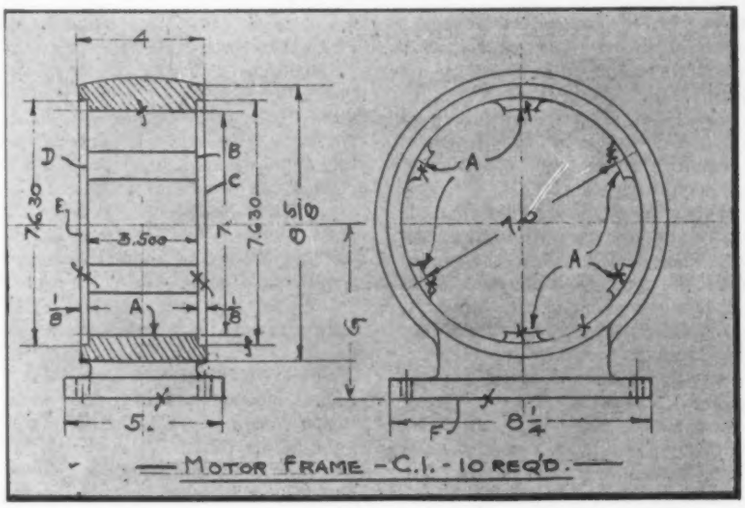


Fig. 1—Example of Piece of Work Requiring a Lathe Set-Up

A great portion of work handled on engine lathes can be held for machining in a two, three or four-jawed chuck, or else on centers and driven by a dog. For irregular castings it is sometimes possible to use a chuck for centering, supplemented by clamps to hold the work firmly. A suggestion in writing on the set-up sheet is sufficient to cover a situation of this kind, or a simple free-hand sketch to show the method. When special blocks, studs, clamps or angles are required for setting up, sketches should be made before sending the work into the shop so that the operator will not be delayed by having to make up or hunt around for the items that he needs. It frequently happens that without such provision, the operator spends sometimes as much as half a day in setting up a job which requires only about one hour's machining time. This is obviously a loss to the manufacturer when the work is done on the contract basis, and to the customer when done on the hourly basis.

A simple example of a piece of work requiring a lathe set-up is the motor frame casting shown in Fig. 1, a lot of 10 of which may be assumed to be required. The piece is of cast iron and the operations specified are mill base; drill holes; bore face and recess. The only operations considered are the boring, facing and cutting of the recesses on each side of the piece, these surfaces being specified as *A*, *B*, *C*, *D* and *E*. The distance between the shoulders *B* and *D* is important and other dimensions must also be made within close limits of accuracy. As the base *F* has been previously milled and as it is important to preserve the distance *G*, it is advisable to use the base *F* as a location point when setting up.

Fig. 2 is a reproduction of the set-up sketch given to the operator as a guide in getting the work ready for machining. The sketch shows an angle plate fastened to the face of the chuck 5¼ in. from the center. The number of the angle plate is given on the sheet, thus indicating that it can be located in the tool crib. The size of the chuck is given and the special jaws used also have a number and can be found in the tool crib. In making measurements on the work it would be rather difficult to use ordinary measuring instruments and therefore a sheet metal gage shown at *X* is provided and a number is also given to this gage.

Having this data sheet and blue print of the work the operator simply goes to the tool crib and draws out the tools he needs, so that he is ready to make the set-up. He is not required to hunt for angle plates or special jaws, nor is he obliged to devise a method of chucking the work; all this has been done previously so that he needs only to follow the instructions plainly given. The sketch shown at *Y*, Fig. 2, indicates a 2-in. bar which can be mounted in a holder *Z* on the cross slide of the lathe, so that by using a tool as shown, the inside cutting and the back-facing operations can be done conveniently. It is a decided advantage to do all of this work in one setting in order to obtain uniformity and concentricity. By using roughing and finishing tools in the same bar, the operator's work is simplified greatly and he can therefore do the work in minimum time, whereas if left to his own devices he might spend double or triple this time in the process.

It should be noted that in these articles the setting up of machine tools as a whole is being considered, and while the examples given are not particularly remarkable, they serve to illustrate the application of a system that works out to good advantage on practically all kinds of machining operations. The lathe being a simple machine, the savings obtained are not as pronounced as one some other machine tools, yet a comparison of the time which would ordinarily be consumed on this job if the operator were permitted to set up the machine himself, according to his own ideas, would probably be about as given in the following paragraph.

Advantages of Working from Set-up Sketch

In the first place he would very likely make two settings on the job, using the base *F* to set up on for each operation. In all probability, he would bolt an angle plate of suitable size to a face plate and would

*In a previous article in THE IRON, AGE of April 3, page 989, Mr. Dowd emphasized the loss usually incurred in setting up machine tools for single jobs, and outlined a system for the handling of such work by a special section of the planning department. The present article deals particularly with economies which can be effected in setting up lathe work and illustrations are given of the advantage of the operators working from set-up and data sheets such as described in the previous article.

† Consulting engineer. All rights reserved by the author.

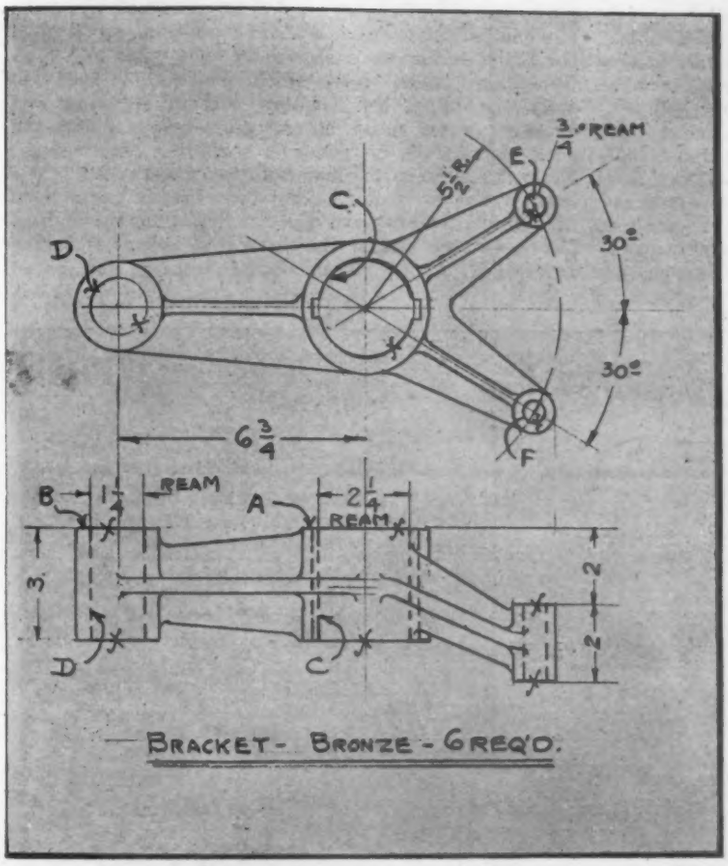


Fig. 3—Example of Irregular Piece. Bracket Fitting, for Lathe Set-Up

use clamps and set screws to hold the work for the first setting. Then he would turn it over and after indicating it to make sure that it is running truly, he would recess and face the other side. He could easily be allowed 2 hr. for setting up the machine and probably 10 min. for setting each piece, which would give us in excess time for 10 pieces: (10 min. × 20) + 2 hr. = 200 + 120 = 320 min. = 5.3 hr. For the machining operation he would probably do the boring, as it is an interrupted cut, at about 25 r.p.m. with a feed for roughing of 0.020 in. per revolution. Assuming approximately this speed and feed, it would take him about 14 min. for the roughing cut and, with a slight increase in speed, the finishing cut might be made in 10 min., and the recessing and facing cuts about 10 min. more, making a total of 34 min. for one side. If an additional 10 min. is allowed for the other side after setting up the work, the total will be 34 min. + 10 min. = 44 min. for the machining of one piece, then [(44 × 10) ÷ 60] + 5.3 hr. = (440 ÷ 60) + 5.3 hr. = 12.6 hr.

By the other method the time of setting up the machine should not be over 1 hr. and the setting of the work and locating it by means of the angle plate and chuck jaws, perhaps 3 min. for each piece. Then the total setting up time would be [(10 × 3) ÷ 60] + 60 = 1.5 hr. If the machining time is considered as exactly the same as in the preceding instance, the time of the complete job will be 7.3 + 1.5 hr. = 8.8 hr. Thus the time saved would be 12.6 hr. — 8.8 hr. = 3.8 hr. In reality the time saved probably would be more than this, because by the second method less time would be consumed in changing tools, and the use of a heavy bar to carry the tools would give an exceptionally good support. Also the method of holding is probably more rigid than if a face plate and clamps were used.

Irregular Pieces Require Careful Planning

When a very irregular piece is to be machined on an engine lathe, it is well worth while to look carefully into the method of setting up, particularly if there are several pieces in the lot. An example of this kind is shown in Fig. 3, which represents a bronze bracket fitting, six of which are required. The preliminary estimate on the work specifies the following operations:

1. Face mill tops of bosses *A* and *B*—milling machine.
2. Set-up on *A* and *B* and bore *C*, r. and f., ream and face—engine lathe.
3. Locate from hole *C* and bore *D*, r. and f., ream and face—engine lathe.
4. Drill, ream and spot face, holes *E* and *F*—drill press.
5. Turn work over and spot face other side—drill press.
6. Cut key-ways in 2¼-in. hole—key-seating machine.

Only lathe operations Nos. 2 and 3 will be discussed. Both of these settings need considerable care in order that the accuracy required may be maintained. The distance, 6¾ in., from center to center between holes *C* and *D* is important and it is necessary therefore to locate one of the holes from the other.

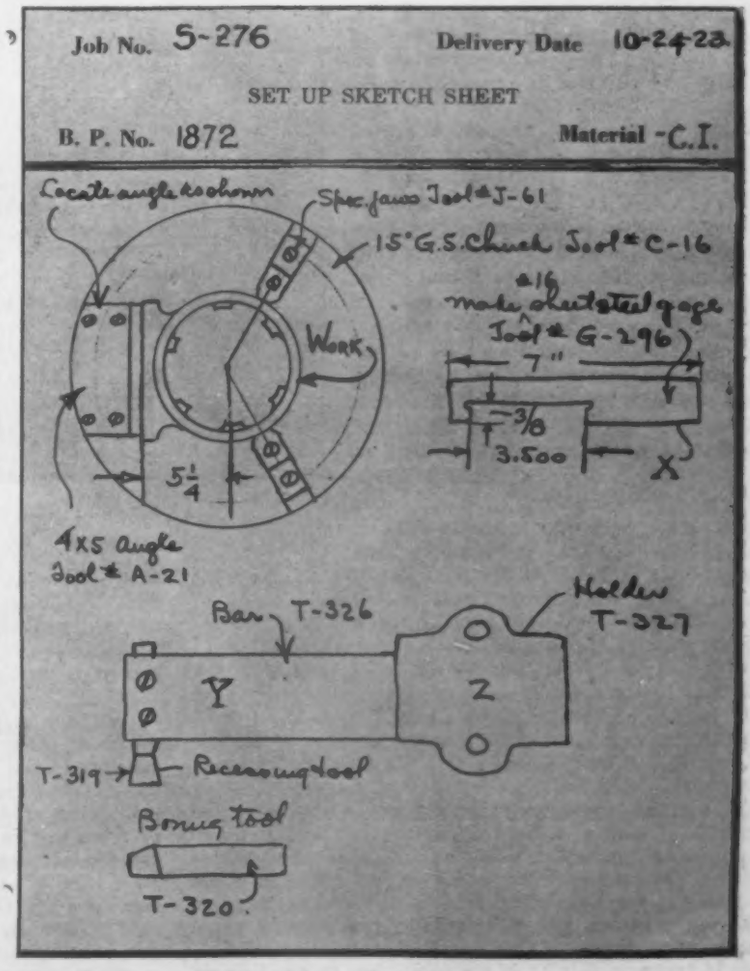


Fig. 2—Set-Up Sketch Given to the Operator as a Guide In Getting Work Ready for Machining

In production work when a large number of pieces are to be made, a fixture for this operation would be employed. Possibly both holes might be machined in the same fixture or the large one might be made first and the smaller located from the larger. When only six pieces are to be considered it is obvious that the expense of a fixture would not be warranted, yet if a series of blocks and clamps can be arranged in such a way that the piece can be properly located and held in a uniform manner, it will be comparatively easy to machine a small number of pieces quite rapidly and as accurately as need be. It is essential that any arrangement of this sort must be made up quickly and at little cost or else its purpose will be defeated.

It is assumed that the tool crib is well supplied with V-blocks, studs, clamps, etc., and that the set-up man either has a duplicate record or that he can easily refer to the tool crib record to find what he wants. Under these circumstances, odd-shaped or irregular work can often by set up on a face plate of suitable size by making a built-up temporary fixture, on which several pieces can be machined in sequence according to the nature of the work.

Built-up Fixture for Lathe Operations

The set-up sketch shown in Fig. 4 illustrates the method of handling this piece of work for the lathe operations Nos. 2 and 3 on a built-up fixture, which is made up almost entirely from standard parts drawn from the tool crib. A description of the method in connection with the sketch will make the matter clear. A standard 20-in. face plate is used for setting up, as shown at *A*. On this plate the V-block *B* is located in such a way that the center of the work *C* will approximate the center of the spindle. The V-block can be set up easily and adjusted in one of the faceplate slots. In other slots at right angles to the first are set the stud clamps *D* and *E* and directly opposite the V-block is a third stud clamp *F*. The one used at *D* is fixed so that the point of the set screw comes against the outside of the hub on the work, thus locating it. The studs at *E* and *F* are readily adjustable and are used to throw the work into the V-block and against the fixed stud as shown. The operator can get the various items from the tool crib by referring to the numbers specified on the sketch sheet, and make up the fixture in less than an hour, ready to apply it to the machine. For the second lathe setting, the same face plate is stripped and a stud *G*, made up special, is inserted and clamped in a T-slot of the face plate 6¾ in. from the center. The measurement may be obtained easily by means of size blocks or vernier calipers. The only additional piece is a clamp *H* to hold the work down.

In setting up for this second lathe operation, the work is first placed on the stud *G* and clamped with a "C" washer and nut after which the V-block is adjusted toward the center until it locates the smaller boss. The clamp *H* is then tightened and the operator is ready for work. Without the assistance of the set-up sketch the average operator probably would not go to the trouble of making a built-up fixture but would set up each piece separately, using an indicator and suitable clamps for holding. The second setting probably would be done in much the same manner as that suggested on the set-up sketch, although probably the operator would make up a simple stud on a lathe for the purpose.

If two men started at the same time to machine six pieces and one of the men had a set-up sketch while the other had none, the man without the sketch would have the first piece of work done before the other had completed his fixture. When the second man is ready to start machining, he continues without stopping and probably would finish his second piece at about the same time as the first man or possibly a little sooner. From this time on the man with the fixture would continue to work and would easily have the six pieces done by the time the first man was completing his third piece. He would then remove the three stud clamps from the face plate, put in the stud *G* and locate it, and loosen

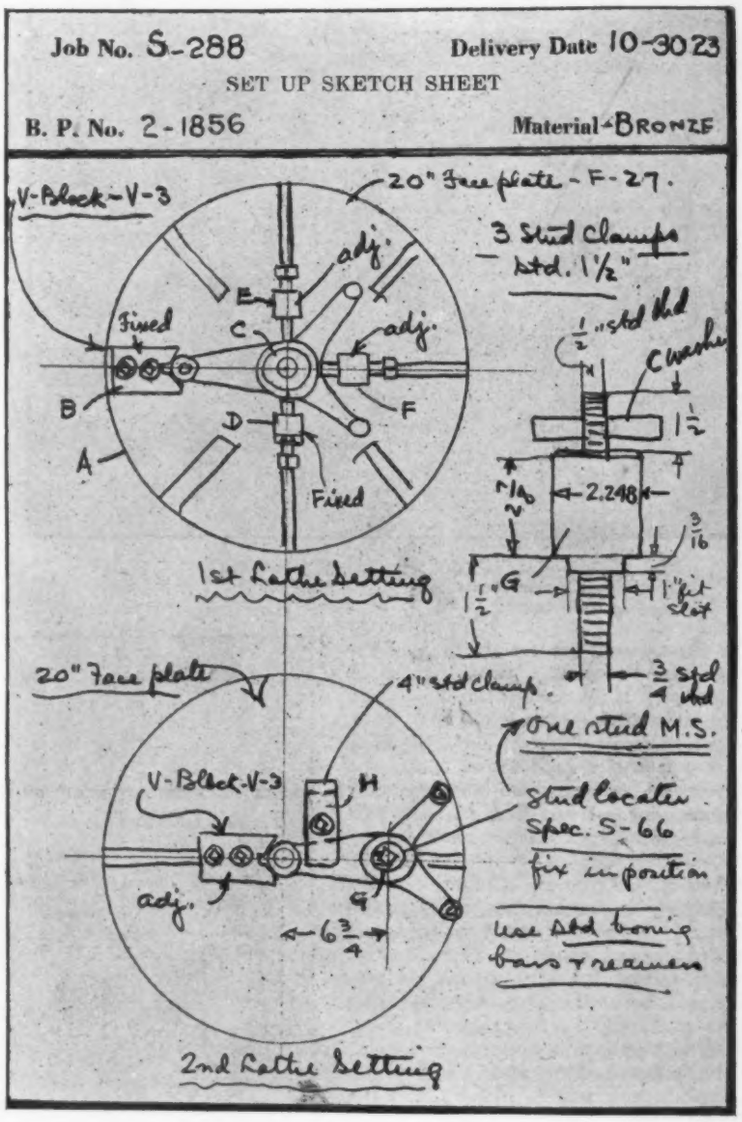


Fig. 4—Set-Up Sketch for Bracket Fitting

the V-block *B*, all of which would not take him over 15 min. No. 2 is now ready for the second lathe operation and probably he would be completely through with it before the first man had found a piece of steel and turned it up for a locating stud for his second lathe setting.

Without going into the details of machining which would be practically the same in either case, it is evident that there would be a saving of 3 or 4 hr. by the set-up sketch method. It may be argued that the set-up man must spend a good deal of time in making the sketches and in looking up the various items which he can use to advantage. In reality a good man on this class of work can make several set-up sketches in a day and even though his rate per hour is the same as the man in the shop, still the saving is worth while on account of the difference in the overhead expense. As a general thing from 15 to 30 min. is sufficient to work

up a free-hand sketch for a simple operation such as that shown in Fig. 4. The actual time consumed in making this sketch outside of that needed in looking up the various tool numbers was 25 min. For this expenditure of time on the part of the set-up man there would be a saving in the shop of at least 3 hr.

Another article by Mr. Dowd will discuss methods of saving time in setting up short jobs on the planer and shaper.

NEW THROUGH RATE

Results of Decision of Interstate Commerce Commission on Cleveland, Pittsburgh and Other Schedules

CLEVELAND, July 7.—Under the decision of the Interstate Commerce Commission announced last week, as briefly reported in THE IRON AGE, a through 19c. rate on steel from the Pittsburgh district to Cleveland over natural routes is made effective and certain advances on short haul rates are authorized which will eliminate combination rates, as combination rates will hereafter be higher than through rates. For a long time the through rate on iron and steel from the Pittsburgh district to Cleveland has been 21½c., but shippers have been able to secure a through 19c. rate by taking advantage of the combination rates that include the rate from Pittsburgh to Youngstown and from Youngstown to the delivery point over certain routes on which the through rates did not apply. The decision affects Akron, Canton and other northern Ohio consuming points as well as Cleveland.

In its original decision on a complaint filed by the American Shipbuilding Co. the Interstate Commerce Commission found that the through rate from Pittsburgh to Cleveland was not unreasonable, but further held that this rate was in violation of a section of the Interstate Commerce act because it was higher than the combination rate between Pittsburgh and the point of delivery. Following this decision, the railroads published advances in short haul rates to become effective Oct. 6 last and the shippers immediately asked the suspension of these short haul rates. In November the Interstate Commerce Commission met in Pittsburgh with the State railroad commissions of Ohio, Pennsylvania and West Virginia to consider the short haul rates. In the meantime the commission allowed reargruments in the Shipbuilding case. The decision just announced is in both the Shipbuilding case and on short haul rates.

In the Shipbuilding case the original decision was reversed, the commission deciding that the through rates on steel to Cleveland and other points were unreasonable in that they exceeded the total of combination rates and that the present 21½c. through rate is unjust to the extent that it exceeds the combination rate. In other words, the commission held that the through rate should not exceed the present 19c. combination rate. In the short haul case, the commission held that the higher tariffs filed by the carriers that were to become effective last October were not justified and should be cancelled. At the same time, it authorized the railroads to file new tariffs advancing the short haul interstate rates not to exceed 15.8 per cent but subject to a resulting maximum rate of 15½c. per 100 lb.

As a result of the decision the Pittsburgh to Youngstown rate and the rate from Sharon to Cleveland will be increased from 9½c. to 11c. The rate from Woodlawn, Pa., (Jones & Laughlin Steel Corporation) to Cleveland will remain at 17c. and the rate from Johnstown to Youngstown will be unchanged at 17½c. The advance allowed in the rate from the Pittsburgh district to Youngstown with no change in the rate from Johnstown favors the Bethlehem Steel Co. as compared with Pittsburgh district mills. However, there will be no change in the present rate differential between Pittsburgh and Johnstown on shipments to Cleveland. The Youngstown to Cleveland rate being an intrastate rate is unchanged at 9½c., but is subject to the decision of the Ohio Commission which has this under consideration.

CANADA'S IMPORTS

Marked Expansion in Movement from United States to Dominion

BY W. L. EDMONDS

TORONTO, June 30.—A marked expansion characterized Canada's imports of iron and steel and their products from the United States during the fiscal year 1923-24, the trade having a total value of $152,176,749—a gain over the two preceding years of $27,806,556 and $52,238,514, respectively. This constitutes rather more than 87 per cent of Canada's imports from all countries under this general classification. Imports from Great Britain, on the other hand, bore a proportion of only a little over 10 per cent to the total, their value being $18,241,866.

The increase in the imports from the United States extended to all general classifications of iron and steel. But that which was the most important contributing factor to the larger trade was the importation of rolling mill products, the value of which amounted to $41,070,758, an increase over 1923 and 1922 of $11,105,243 and $23,111,757, respectively. Hammered, drawn or cold-rolled bars, valued at $4,961,855, alone experienced an increase of $3,089,503. In bars, bands, hoop, scroll and sheet above 3½c. per lb. the trade more than doubled, being valued at $4,448,801, as compared with $2,234,392 the year before. Rolled iron or steel hoop, scroll or strip, No. 13 gage and thicker, had a value of $1,040,758, as compared with $588,679 and $164,072, respectively, the two preceding years. Steel rails, valued at $2,093,164, increased by $943,753. Imports of tin plate from the United States more than doubled, the value being $3,860,437, as compared with $1,748,437 the year before. Galvanized sheets increased from $1,848,082 to $2,235,371. Skelp iron or steel for manufacture of pipe had a value of $4,663,635, an increase over the previous year of $1,242,904. Angles, tees, beams and channels, not further manufactured than rolled, increased from $1,242,504 to $2,602,729. Castings and forgings imported from the United States had a value of $4,346,808—a gain of $1,300,000. Pigs, ingots, blooms and billets imported had a value of $1,452,492, as compared with $1,284,720 the year before. Of tubes, pipe and fittings $3,352,011 worth was imported—an increase of over $900,000.

Machinery of all kinds (except agricultural) imported during the year from the United States had a total value of $24,636,435—a gain of $2,083,189. The most marked increases were in metal-working machinery and power pumps. Under the classification of farm implements and machinery the increase was even more marked, the imports having a value of $11,570,014—a gain of $3,217,943. Engines and boilers imported from the United States had a value of $8,353,483, as compared with $6,732,447 the year before and $4,663,049 in 1922.

Although under the general classification of vehicles there was an increase in the imports from the United States, the figures being $30,317,496, as compared with $28,758,858 and $21,994,154, respectively, the two preceding years, it was altogether due to the larger trade in automobile parts, the value of which was $16,747,228—a gain of $2,681,509. Automobiles had a value of $11,219,979, as against $13,522,908 the previous fiscal year. Taking automobiles and parts, the trade had a total value of $27,967,207—an increase of $378,580. Another contributing factor to the increase under the vehicle classification was the larger imports of parts of railroad cars, the value of which was $1,272,973.

Heat Treatment of Steel and Its Quality*

Influence of the Raw Materials and the Various Processes —Suggested Standards Affecting Basic Quality

BY P. E. MCKINNEY

WHILE great advances have been made in steel production as a whole, it is believed that too little attention is being given by steel treaters to those treatments which the material receives before it becomes a solidified ingot.

A glance at modern specifications for high grade carbon and alloy steel shows a rather exhaustive treatment of the subject of composition—physical characteristics as determined by the tensile test bar and heat treatment, dimensions, tolerances, etc., but usually, if reference to the class of raw material is made, it is confined to specifying the process to be used, such as the open-hearth, electric or crucible steel, with a warning clause as to freedom from injurious defects, etc.

The inference to be drawn from such specifications is that steel is steel, that if the material in question is the product of the process specified, has the specified chemical composition and meets the requirements as to static physical tests, the basic quality of the material is beyond question and any further trouble with the material must therefore be blamed on faulty fabrication or heat treatment, crystallization, fatigue, or some other fault which has taken place after the material became steel.

Development in the art of steel treating has performed wonders in making possible modern engineering developments, the efficiency of practically every modern mechanism being dependent for its functioning on the work of the steel treater. It is believed, however, that at the present time the steel treater is expected to solve all of the problems through heat treatment methods without sufficient regard to assisting in his work by a closer study of the characteristics of the raw material.

In general the consideration of problems in connection with utilization of modern carbon and alloy steels has been attempted with a pronounced lack of study of the pre-natal history of the material which the steel treater is required to handle. Attempts to solve problems usually centralize in the study of modifications in forging or rolling practice and heat treatment. While offering a large measure of success in many cases, the drastic treatments necessary to overcome inherent defects in the basic material are in the nature of a medicine, and will never be as satisfactory as preventive measures based on the furnishing of the most suitable raw materials.

The information usually available to the steel treater regarding the character of the raw material and the basis for most specifications, treats only with chemical composition of the material and the process by which it was manufactured, giving no details or specified requirements regarding either degrees of refinement in melt practice or structural characteristics of the material.

Discussing chemical composition, it is becoming pretty generally recognized that this in itself is no guide as to the quality of the material, as it is very readily possible to have material produced by the basic open-hearth process identical in chemical composition with the highest grade of material made by the crucible process. The classification of material based on the melting process with no further qualification is also an inadequate method for determining comparative quality of the material.

While ordinarily steel is classed in order of excellence as follows, electric, acid open-hearth, basic open-hearth, Bessemer, it has been proved that by the most careful work there can be produced in a small Bessemer converter a product superior to the product from an arc electric furnace which has been indifferently operated.

The following factors, not ordinarily covered in specifications and on which information is usually not available to the heat treatment man, contribute to determining the basic quality of the material:

Temperature condition during melting and refining.
Condition of slag during refining and at finish.
Method of introducing ferroalloys and deoxidizers.
Condition and temperature of metal before tapping.
Method and speed of teeming ingots.
Size of ingot used for a given purpose.
Type of ingot mold used.
Temperature of metal entering the ingot.
Shrinkage of the ingot on cooling.
Behavior of the ingot during solidification.
Temperature of stripping ingot.

In the average metallurgical classification of ma-

*Abstract from a paper entitled, "Problem of the Steel Treaters as Influenced by Pre-natal History of Material," delivered before the Washington Chapter of the American Society for Steel Treating recently. The author is metallurgist, United States Navy Yard, Washington.

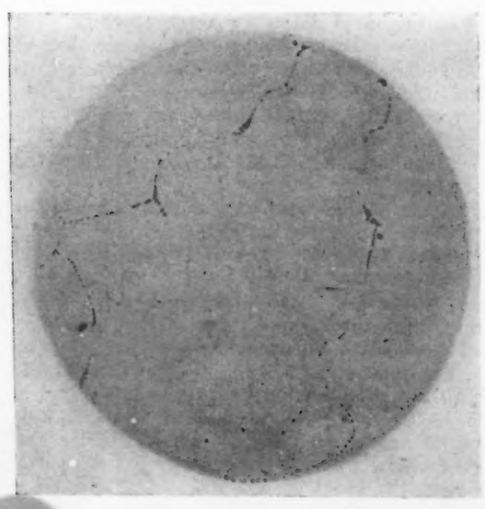


Fig. 1 — (Left) —Heavy Ingot Containing Inclusion: X—100. Unetched

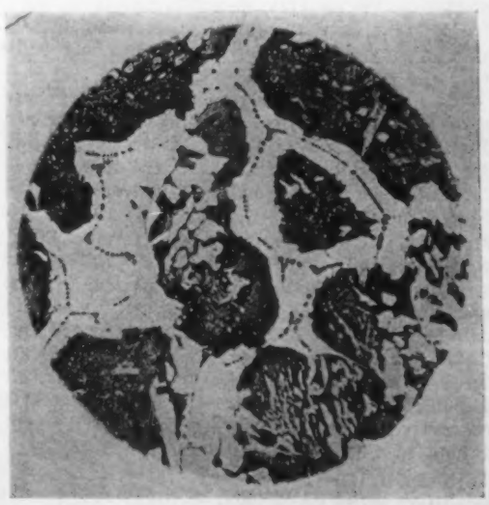


Fig. 2—(Right) —Heavy Ingot Containing Inclusion: X—100. Etched

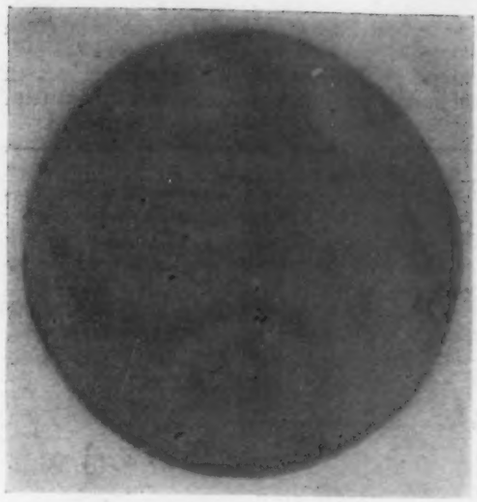


Fig. 3—(Left)—Heavy Ingot Reasonably Free From Inclusion; X—100. Unetched

Fig. 4—(Right)—Heavy Ingot Reasonably Free From Inclusion; X—100. Etched

terials the above factors are given scant consideration. The heat treater's problem is usually to obtain with a material of given chemical composition certain prescribed physical values, such as longitudinal tensile tests and Brinnel hardness which are inherent to the material and tend only to prove that the heat treatment was properly performed. In average practice the nature of the prescribed tests are such as to preclude the detection of defects which may have a marked influence on serviceability, especially as regards ability of the material to withstand prolonged service or unusual stressing.

Many instances have been noted where generally acceptable commercial steels have failed to perform satisfactory service under unusually severe requirements, only to be replaced by material of similar chemical and tensile properties, but produced under very exacting practice, which functioned in a perfectly satisfactory manner.

Since it is evident that steel of a given composition may vary greatly, dependent upon production practice, and that generally recognized methods for selection of raw material are insufficient for classification, it appears that the steel treater is entirely justified in demanding the establishment of standards for determining basic quality which will afford a proper method of classification of material for various purposes. This may be accomplished by:

First: The classification of material based on the character of service for which it is intended without regard to composition.

Second: The recognition of approved methods and the establishment of recommended practices for production of ingot material along the same lines as the established recommended practice for heat treatment of fabricated material.

Third: The development of methods for testing material to supplement present methods which will detect inherent defects in the material.

Among others the following tests might be suggested:

Deep etching for macroscopic examination of longitudinal and transverse sections of billet or bar stock.

Examination of longitudinal and transverse fractured sections of quenched billet or bar stock for detection of irregularity in grain.

Examination of the surface of bar stock for splits or irregularities after the specimen has been upset by cold pressing to at least two-thirds of its original length.

Specifications embodying such additional test could not be enforced at the present time, but data collected from observation on various lots of material would in a comparatively short time furnish the information necessary to use additional test methods as a part of working specifications.

While it would be ridiculous to contend that such high standards should be made to apply to material required for unimportant purposes, such as concrete reinforcement rods, floor plates, etc., it appears equally preposterous to assume that all classes of steel, regardless of the character of service for which required, should be considered on the same basis as regards quality standards, and without the recognition of the necessity for exacting requirements where demanded by the service involved.

American Car & Foundry Report

The American Car & Foundry Co. reports net income for the year ending April 30 of $6,304,967, after charges and Federal taxes. Allowing for preferred dividend requirements, there was a remainder equal to $14.01 per share earned on $30,000,000 common stock. This compares with $6,213,611 or $13.71 per share in the preceding year. Surplus stood at $604,967, against $513,611 the year before. Total surplus was increased from $36,673,499 in 1923 to $37,278,466.

To the obstructions which have impeded the enactment of constructive legislation, coupled with the general unsettlement characteristic of a Presidential year, President William H. Woodin attributes in some measuse the falling off in equipment buying. Operations are now between 75 and 80 per cent of capacity.

President Woodin set at rest rumors concerning his resignation, stating that he had no intention of taking such action.

"Industrial Fellowships" is the title of a little 32-page booklet issued by the Mellon Institute of Industrial Research of the University of Pittsburgh. The booklet tells something of the history of the institute and the work it has been doing in industrial research, mainly along chemical lines, although both physics and biology enter into it. For the use of the industrial fellows of the institute there are 45 individual laboratories assigned, while the research library at their disposal is designed to further the work in every possible way. The number of fellows has increased from 24 in 1912 to 83 in 1924, while the sums available for research have increased during the same interval from $40,000 to $412,000.

A group life insurance policy on which the premiums are to be paid by both employer and employees has been acquired by the workers of the Bridgeport Casting Co., Bridgeport, Conn. In addition to the life protection of $1,000 each, the employees are provided for in the event of disability through accident or illness, when they will be paid $10 weekly up to 26 weeks.

The Pere Marquette shops at St. Thomas, Ont., were closed June 21 and remained closed for two weeks. Some 200 men were affected. Officials of the company state the action is part of a general retrenchment all over the system, caused by a big drop in the company's earnings during the first half of June.

COMPUTES CENTRIFUGAL TENSION

Chart for Graphic Determination Covers Many Materials of Construction

BY W. F. SCHAPHORST

WHENEVER any material moves in a curved path it is affected by centrifugal force. Though we come in contact with centrifugal force every day, it is a

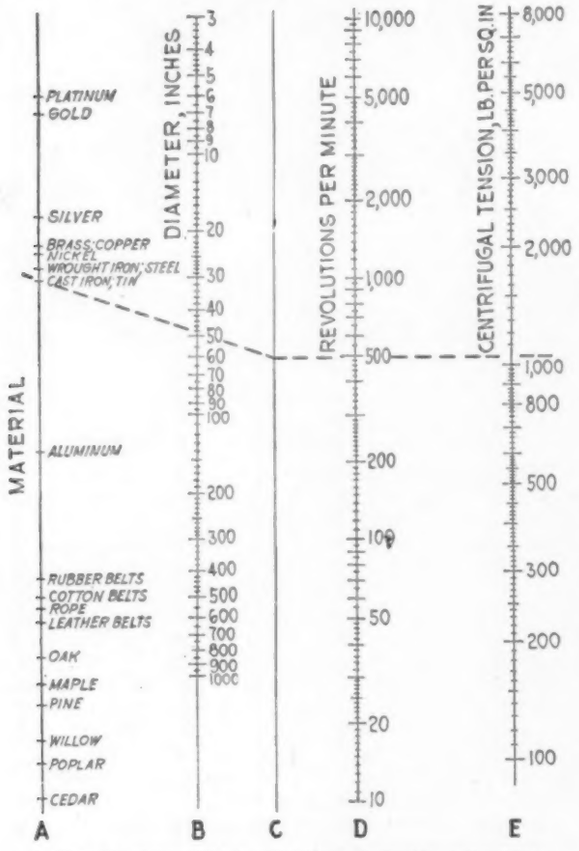


Chart for Determining Centrifugal Tension, When Material, Diameter and Rotating Speed Are Known. Conversely, the required diameter can be determined if the three other items are known or assumed

thing that we seldom see discussed. Most people seem to consider it a "complex" subject.

To assist in showing how simple it is the writer has made the accompanying chart which includes most of the common materials used by the industrial world in its rotating parts. Merely run a couple of straight lines across the chart and one can now instantly determine the centrifugal tension for any common material at any ordinary commercial speed.

For example: What is the centrifugal tension in a cast iron flywheel 48 in. in diameter, making 500 r.p.m.?

Find the point opposite "cast iron" in column A and run a straight line from that point through the 48 in column B and locate the intersection in column C. From the point of intersection run through the 500 in column D and the intersection with column E shows the centrifugal tension to be about 1060 lb. per sq. in.

As will be noticed, the chart is applicable to pulleys, rings, disks, etc., made of brass, wrought iron, steel or aluminum, and even platinum. It will take care of pulleys made of almost any kind of wood and it will take care of rubber, cotton, and leather belts, and rope drives. With this chart at hand there need no longer be any question about the centrifugal tension in any ordinary machine part.

Inversely, the chart can be used for predetermining the revolutions per minute that any ring, pulley, or disk may be allowed to make if it is known beforehand what centrifugal tension is allowable. Or, it can be used for deciding the diameter in inches. Or, it may be a factor in deciding the best kind of material to use in a given machine part. In other words, if any three of the factors in columns A, B, D and E are known, the fourth or unknown is quickly found without any mathematical calculation whatever.

If it is desired to check the chart mathematically, the centrifugal tension in lb. per sq. in. may be found by applying this rule: Multiply the weight of the material in lb. per cu. ft. by the square of the diameter of the pulley or diameter of motion in ft.; then multiply that by the square of the r.p.m.; and lastly, divide by 1,690,000.

Thus, checking the problem solved by the chart, the pulley diameter being 4 ft.; r.p.m. 500 and cast iron weighing 450 lb. per cu. ft., we get: $450 \times 4 \times 4 \times 500 \times 500 \div 1{,}690{,}000 = 1060$ lb. per sq. in.

Corrosion of Metals and Alloys in Acid Mine Water

W. W. Teague, research fellow, under a cooperative agreement between the Carnegie Institute of Technology and the Department of the Interior, is preparing a report on the relation of acidity and oxygen to the corrosion of metals and alloys in acid mine water, which will embody the results of a study conducted at the Pittsburgh experiment station of the Bureau of Mines. Mr. Teague's work has shown that (1) in the corrosive action of mine water the rate of corrosion for those metals above hydrogen in the electromotive series is dependent upon the hydrogen ion value; and (2) the rate of corrosion for those metals below hydrogen in the electromotive series is a function of the potential oxygen in solution. Incidentally some of the relations of solution pressure and passivity to corrosion have been determined. In alloys rich in zinc, for example, corrosion is much affected by increase in the amount of acid present, since zinc is above hydrogen in the electromotive series. For alloys rich in copper (below hydrogen in the electromotive series) the rate of corrosion is a function of the amount for ferric sulphate present. For high chromium steels the effects of passivity rule the rate of corrosion.

Landis Machine Co. Absorbs Victor Tool Co.

The Victor Tool Co., Waynesboro, Pa., manufacturer of collapsible taps, automatic die head, floating tool holders and nut facing machines, has been merged with the Landis Machine Co., Waynesboro, manufacturer of threading die heads and machines. In the future all correspondence applying to Victor products should be addressed to the Landis Machine Co., Victor plant, Waynesboro.

The trade name Victor will continue to apply to the line of machines formerly made by the Victor company. There will be no change in the selling arrangements of the Victor products. This merger permits the Landis Machine Co. to handle both internal and external threading requirements.

The Stoughton Wagon Co., of Stoughton, Wis., which is now devoting its principal resources to the manufacture of motor trucks, for freight as well as passenger transportation, reported a business of $1,740,000 in the fiscal year just ended, with a satisfactory profit which was turned into the working fund instead of a dividend. The motor truck business was double that of the previous year, and a considerable sum was set aside for alterations and new equipment to extend the truck and body capacity. F. J. Vea is president.

At Lima, Peru, an industrial and mining exposition will be opened on Dec. 9. Eduardo Higginson, consul general of Peru at New York, has been requested by the Government of Peru to invite American firms manufacturing mining and metallurgical machinery to exhibit, which may be done without charge.

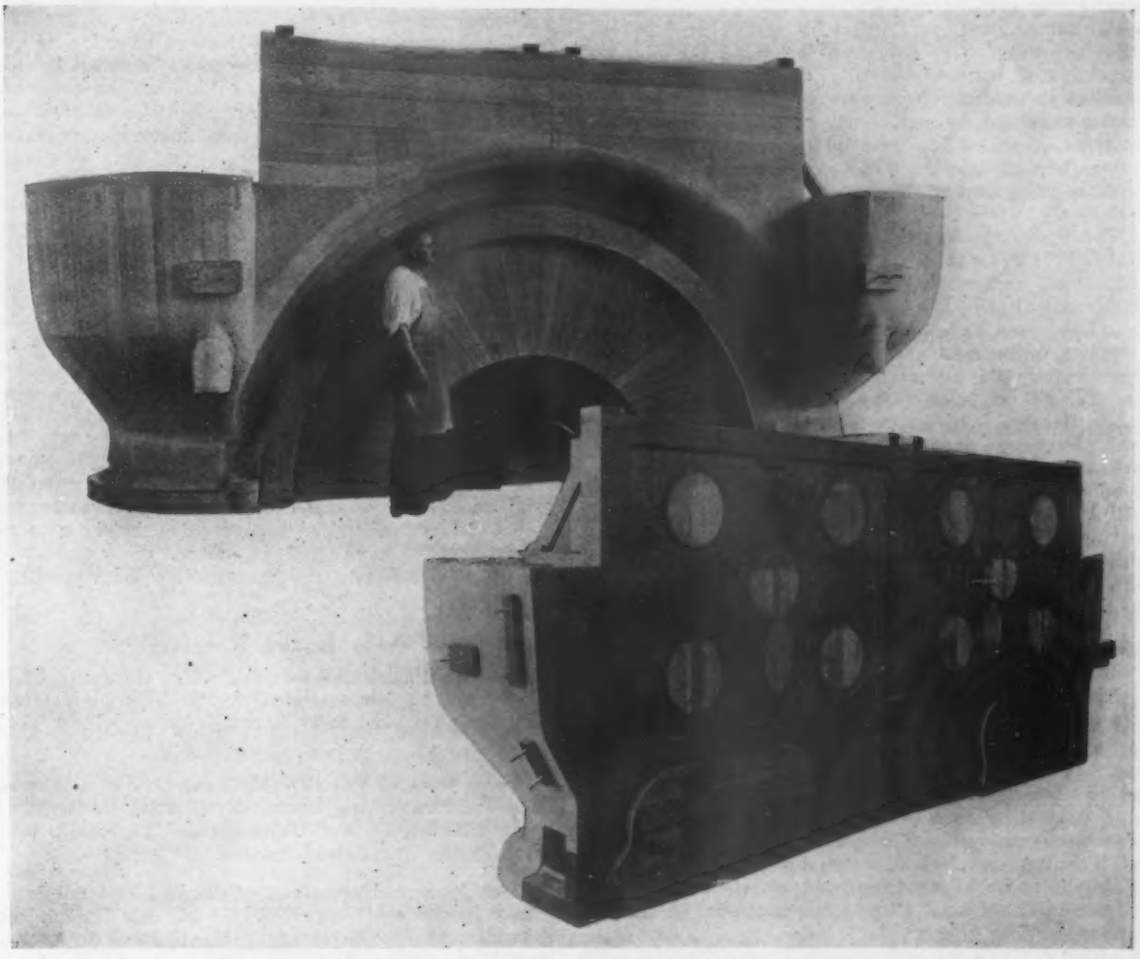
Wood Pattern Weighing Nine Tons

The pattern shown in the accompanying illustrations is one of the largest ever made in the General Electric shops at Schenectady, N. Y. It will be used in making a casting for the lower exhaust hood of a 40,000-kw. steam turbine for the Columbia Gas & Electric Co., which is installing two of these turbines in its new Miami Fort station on the Ohio River below Cincinnati.

The pattern is 22½ ft. wide and 9½ ft. high at the center. Complete, it consists of one pattern containing 66 loose pieces besides the main pattern and 54 separate core boxes. Altogether it contains 9000 sq. ft. of pine and weighs 9 tons, the pattern proper utilizing 5000 sq. ft. of pine and weighing 5 tons, and the core boxes calling for 4000 sq. ft. of wood and weighing 4 tons. The weight of the casting to be made from this pattern will be approximately 70,000 lb.

By making certain changes, known as "set ups," the same pattern (originally built to make the bottom half of the turbine end of the exhaust hood) will be used for the generator end of the same machine. This pattern, however, constitutes the bottom half only of the exhaust hood. The pattern with the top half added will make the entire job almost double the height shown in the photographs.

It took ten men almost two months to build the pattern shown, complete with core boxes.



Pattern for Casting for Lower Exhaust Hood of a 40,000-Kw. Steam Turbine, 9½ Ft. High and 22½ Ft. Wide, Requiring in Addition 54 Separate Core Boxes

World Survey of Zinc Industry

WASHINGTON, July 8.—Compiled under the supervision of James A. Stader as chief of the Mineral Section, Iron and Steel Division, Department of Commerce, the Department has just issued Trade Information Bulletin 246, "World Survey of the Zinc Industry," which carries exhaustive data on world production and consumption of zinc, together with the export and import movement of zinc. In a report by E. C. Siebenthal of the United States Geological Survey, it is shown that prior to the World War the United States produced about 30 per cent of the world's output of slab zinc, while during the war and for two years thereafter it produced from 50 to 60 per cent and at present it produces about 45 per cent. In a foreword, Director Julius Klein of the Bureau of Foreign and Domestic Commerce says that because of the rapid development of the Picher district, near the boundaries between Oklahoma, Kansas and Missouri, it can be safely predicted that the United States will hold its position as the leading producer of zinc for many years to come. In a table from the American Bureau of Metals Statistics, the world production of zinc in 1923 is given as 974,748 metric tons, of which 481,906 metric tons is credited to the United States, with Belgium given second rank with 148,080 metric tons. World consumption, according to the same source, totaled 935,200 metric tons in 1923, of which the United States consumed 420,100 metric tons, while Great Britain ranked second with 157,000 metric tons. Another table, giving the estimated mine production of zinc in the United States in 1923 as 623,000 net tons, shows Oklahoma by far the leading producing section, with 246,900 net tons.

According to figures taken from the American Iron and Steel Institute, 189,000 net tons is the estimated amount of zinc used in 1922 in the United States for galvanizing iron and steel sheets, formed products, and pipe.

BOOK REVIEWS

Fowler's Pocket Books. Edited by William H. Fowler. "Mechanical Engineers Pocket Book," twenty-sixth annual edition, 560 pages, price 3s. net. "Electrical Engineer's Pocket Book," twenty-fourth annual edition, 514 pages, price 3s. net. "Mechanics and Machinists' Pocket Book," sixteenth annual edition, 448 pages, price 2s. net. The size of each is 4 x 6 in. Published by the Scientific Publishing Co., Manchester, England.

The mechanical engineer's pocket book includes mathematical tables, data on bolts, nuts, fuels, boilers, boiler accessories, steam, gas, and oil engines, locomotives, pumps and transmission equipment. Several pages are devoted to iron and steel and the physical properties of various metals.

Electric welding, lighting and heating wiring diagrams, electrical measurements and measuring devices, batteries, construction and management of dynamos and motors, electric traction and a wealth of other material is presented in the electrical engineer's pocket book.

The pocket book for mechanics and machinists is intended to present a synopsis of practical rules for machinists, millwrights, draftsmen and apprentices. Mathematical tables, a synopsis of the various metals and alloys, and their physical properties are included. A section on machine tool design includes machine elements, cone pulley calculations, differential feed motion, tumbler, gearing, etc. The component elements of lathes, planers, and heavy milling machines are outlined. Pages are devoted to proportions of machine tool parts and several pages to metal cutting tools. High-speed tool steels, drilling and boring, screws and screw cutting, precision grinding, shop practice and wheel gearing are titles of other sections. A short section is devoted to rope and belt driving, shafting and bearings, lifting ropes and chains. Information is also given on welding.

"Mechanical World" Electrical Pocket Book. Pages 326; 4 x 6 in. Published by Emmott & Co., Ltd., 65 King Street, Manchester, England. Price, 1s. 6d.

Like previous editions, this volume comprises a collection of electrical engineering notes, rules, tables and data. The section on accumulators has been rewritten and the latest developments included. A section devoted to testing sets gives particulars of various instruments employed. The sections on electric lamps and lighting, on electricity in ships, and on electric welding have been rewritten, and revisions have been made in other sections. New sections appear on electric furnaces and on thermionic valves.

Buildings for Commerce and Industry. By Walter F. Ballinger, architect and engineer. Pages 92, 8 x 11 in.; illustrated. Published by the Ballinger Co., 100 East Forty-second Street, New York. Available to executives upon request.

"Most manufacturers enlarge their plants when building costs are highest," says Walter F. Ballinger in his book which tells in a style both lucid and brief the relation of construction costs to business conditions. It is shown by diagrams and business curves that those costs follow business conditions after a short lapse of time; that residential and speculative building revives quickly and may even anticipate the general business trend, while industrial and commercial building is delayed until normal conditions are reached in general business. Many factories are built at relatively mounting prices and reach completion only to face a period of slack business activity. The author's experience has shown that "most industrial projects are undertaken when building costs are highest and many are completed just before a period of depression."

"The opportunities for the better management of business expansion and the rewards that will follow the use of foresight in planning for new construction," says the author, "are readily apparent. In view of the facts presented by these charts, it is obviously sound business to anticipate the need for new construction, so that construction contracts may be let during the period of lowest prices. Not only will the cost be kept at a minimum thereby, but also the building will be ready for occupancy when business conditions are well stabilized and the demand for goods is growing. Production will start on a rising market, enabling the manufacturer to purchase his raw materials at low prices and to procure his extra hands when labor is plentiful and wages low.

"On the other hand, it may not pay to wait for low construction costs (which occur in periods of depression). The time to build is when the greatest profit will result. Profits may be earned in a factory erected at relatively high cost, sufficiently to more than offset the premium paid for the building."

The book contains illustrations of exterior and interior views of manufacturing and commercial buildings of all types, and the author discusses the economics of building operations, touching upon the various matters which arise preliminary to a building or engineering operation.

One chapter is devoted to two improvements in industrial building design developed recently by the Ballinger Co. One is a new type of daylight multi-story factory building of concrete construction. These buildings have continuous windows from end to end without the usual vertical piers which interrupt the light. The other is an improvement in the method of designing sawtooth roofs so that interior columns are unnecessary for spans up to 100 ft. The total elimination of columns makes for greater availability of floor space and for convenient readjustment of equipment.

Problems in planning construction are discussed, together with costly errors frequently made, and corrective suggestions are offered. Stress is laid upon the vital importance of selecting the type of building best suited to operations. Attention also is given to the advantages of "daylight" buildings, the economy of the "super-span" construction, and to special problems.

New Books Received

Arc Welding Handbook. By C. J. Holslag. Pages 250, 5 x 7½ in.; illustrations, 50. Published by McGraw-Hill Book Co., Inc., 370 Seventh Avenue, New York. Price, $2.

Hand Book of Practical Mechanics. For use in the Shop and Draughting Room. By Charles H. Saunders. Pages 251, 4 x 6¼ in. Published by Charles H. Saunders, 31 Bay State Road, Boston. Price, $2.

The Modern Executive. Compiled and edited by Daniel Bloomfield. Pages XVIII+266, 5 x 7¾ in. Published by H. W. Wilson Co., 960 University Avenue, New York. Price, $2.25.

Crain's Market Data Book and Directory of Class, Trade and Technical Publications. Pages 505, 6 x 8⅞ in. Published by G. D. Crain, Jr., 537 South Dearborn Street, Chicago. Price, $5.

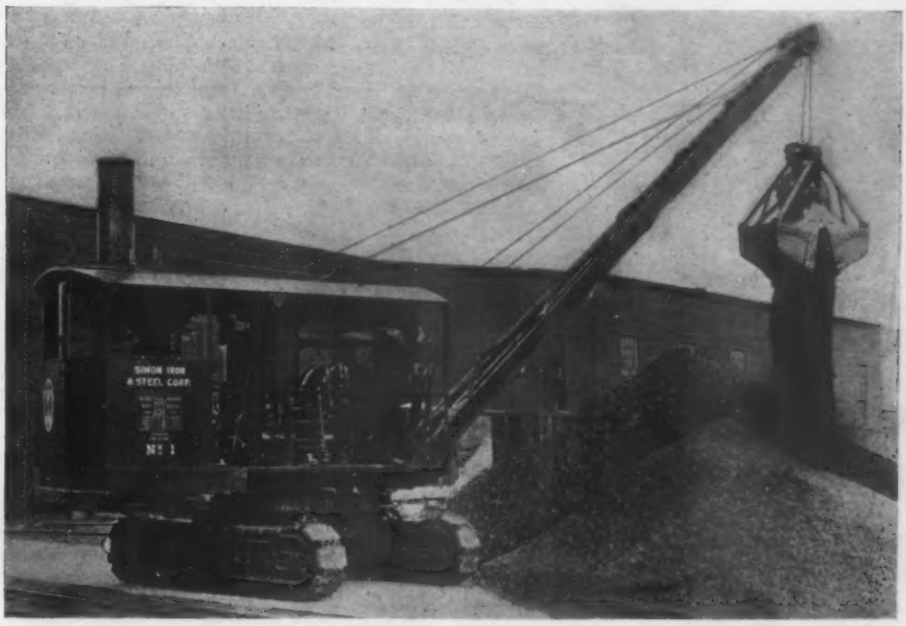
Elasticity and Strength of Materials. Section IV. By C. A. P. Turner. Pages, 134, 6 x 9¼; illustrated. Published by C. A. P. Turner Co., 300 Builders' Exchange, Minneapolis. Price, $5.

The American Engineering Standards Committee, 29 West Thirty-ninth Street, New York, has issued its 1924 Year Book in 64 pages, showing the activities of the committee during the past year and listing the various standardization projects made or now under way by the committee. The total number of projects has passed 150, while approved standards have been issued in about 50 cases, the other projects being still in process of development. The publication gives the method of procedure, lists the cooperating bodies and sustaining members and also the representatives of the member bodies, as well as the standing committees.

New Ten-Ton Crawling Tractor Crane

Independent control of the traveling, slewing and hoisting motions is a feature of the 10-ton crawling tractor crane illustrated herewith, which has been placed on the market by the Industrial Works, Bay City, Mich.

The machine, which is designated as the type "D" and is intended as a general utility crane of small capacity, operates with clamshell or dragline bucket, electro-magnet, hook and block or grapple, and may be converted conveniently into a shovel or a pile driver.



Tractor Crane of 10-Ton Capacity for Operation With Clamshell or Dragline Bucket, Electro-Magnet, Hook and Block or Grapple. Independent control of the traveling, slewing and hoisting motions, which may be used in a variety of combinations, is a feature

It is designed for operation by steam, electric or gasoline power.

The independent control of the traveling, slewing and hoisting may be utilized in a variety of combinations which are claimed to permit of increased speed and efficiency of operation. Slewing in either direction is accomplished by means of a double friction clutch and a train of bevel and spur gears, and without reversing the engine. A slewing brake is provided to hold the boom securely with a suspended load in any position. The vertical slewing shaft is located accessibly at the front of the base of the boom, and the power being transmitted at this point, the slewing stress carried through the revolving frame is said to be greatly minimized.

The upper works rests on a steel base which rotates on four conical steel rollers. The latter are accessible and may be taken out without removing any of the parts or jacking up the crane. Bolted to the rotating bed are heavy steel side frames which carry the shaft bearings, the latter being placed on the outside of the frame to facilitate removal without displacement of other parts. Cut steel gears are employed in the upper works. Lubrication is by means of a pressure system and all oil pipes lead to the operator's platform. Clutches controlling the various motions are of a new friction type.

The crane has two traveling speeds and reversal of direction is accomplished by reversing the engine. The machine may be steered from the operator's platform while propelling, this being accomplished through friction clutches and brakes controlling each tractor belt. The propelling and steering mechanism incorporated is claimed to be an exclusive feature and to permit of propelling and steering the crane independently of all other motions with the boom in any direction.

Other features include the automatic double-hoisting drums which provide automatic control of the bucket during operation. Both drums provide enough rope pull as required for dragline and hoisting purposes. Hoisting the bucket open on the auxiliary drum is a feature intended to increase the output and simplify operation of the crane. A radius-varying appliance consisting of a bronze worm, worm wheel and drum, and controlled by friction clutches and a semi-automatic brake, raises or lowers the boom when loaded to capacity. Levers for controlling all motions are conveniently located, and the view of the work is unobstructed.

Malleable Castings in May

Malleable castings produced in May by 132 plants amounted to 49,814 tons. Shipments were 54,487 tons, orders booked were 29,741 tons and operations were 45.6 per cent of capacity, the latter being 109,173 tons monthly. These figures, given out July 3 by the Department of Commerce, show conditions not so favorable as they were in April, when 133 plants with a capacity of 109,131 tons, operated at a rate of 53.7 per cent and produced 58,634 tons, shipped 57,238 tons and booked orders for 45,955 tons.

Comparing 109 identical plants, the report shows that operations were 46 per cent in May as against 54 per cent in April and 66.2 per cent in March. The production of these plants in May was 43,218 tons, shipments 46,685 tons and orders booked 26,866 tons. Production in April of the same group of plants was 50,978 tons, shipments 49,640 tons, and orders 39,163 tons.

Railroad Labor Conditions

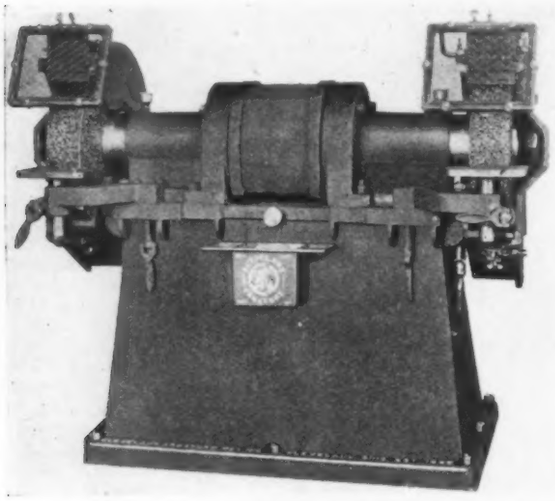
In research report No. 70 the National Industrial Conference Board, New York, analyzes wages, hours and employment of railroad workers for the period from July, 1914, to the end of March, 1924. The analysis, which is elaborate, covers different classifications of employment, both in tables and in diagrams, for all Class I railroads. The pamphlet contains 92 pages.

In the general summary it is brought out that the average hourly earnings in 1924 were 60c., or 136 per cent greater than the 25.4c. average in 1914, but below the 70.2c. peak of 1920. Weekly earnings in 1924 were $29.73, or 99 per cent greater than the $15.17 in 1914, but 20 per cent below the $36.88 peak of 1920. The purchasing power of the weekly earnings was 20 per cent greater in 1924 than in 1914, because the cost of living was not so far above that of the earlier date as were the earnings.

Heavy-Duty Motor-Driven Floor Grinder

Convenience of operation is a feature of the motor-driven heavy-duty floor grinder shown in the accompanying illustration, which is a recent addition to the line of the Cleveland Armature Works, Inc., 4732 St. Clair Avenue, Cleveland. The machine is available in two sizes, equipped with 10-hp. and 15-hp. motors, respectively, and 18 x 3-in. and 18 x 4-in. grinding wheels.

The motor employed is said to have been developed by the company for the particular work of the machine. Windings are insulated and treated with an oil-proof



Convenience of Operation Is a Feature. Two sizes, for wheels of 18 in. and 20 in. in diameter, are available

compound and the stator rings and steel tie rings are electrically welded before machining. The rotor bars and rings are also electrically welded. The stator laminations are exposed to the air to reduce heating in carrying overloads and large fans are provided at each end of the motor to facilitate cooling. The motor shaft is of chrome-nickel steel and runs in taper roller bearings which are adjustable for wear. The wheel flanges are of steel and are machined all over and balanced, the inner flanges being keyed to the shaft to form an extra seal against grit entering the bearings.

Safety features include the wire glass eye shields for the grinding wheels, shown in the illustration. A thick steel plate at the front of each wheel at the upper guard opening is intended to deflect sparks and pieces of wheel fragments in case of wheel fracture. Adjustable spark catchers serve to deflect the sparks and abrasive dust into the exhaust system. A shaft lock is provided to hold the spindle firmly while grinding wheels are being changed. The electric control operates in oil so that no live parts are exposed and the machine is started and stopped by a knob within easy reach.

Among operating conveniences may be mentioned the handle nuts for moving the wheel guards back to permit of proper wheel gap and the wheel guard covers may be loosened and set up by means of the thumb nuts provided. The work rest is adjustable in three directions and may be conveniently removed. A shelf and water pot for tool grinding which is fastened to the front of the machine may be detached conveniently.

The distance from the floor to grinding wheel spindle center is 34 in. and the distance between the wheel centers is 45½ or 46½ in., depending upon the size of the machine. The floor space occupied is 28 x 44 in. and the overall length 60 in. The diameter of the spindle is 1¾ in. at the wheel and 2⅜ in. at the motor. The net weight of the machine equipped with a 10-hp. motor and 18-in. by 3-in. wheels is 3450 lb.

The executive board of the Ohio State Foundrymen's Association held a meeting at Springfield, Ohio, July 1, to discuss plans for the annual meeting to be held at Cleveland some time in September. The exact dates will be selected at the next meeting of the executive board.

Will Close Plants of British Empire Steel Corporation

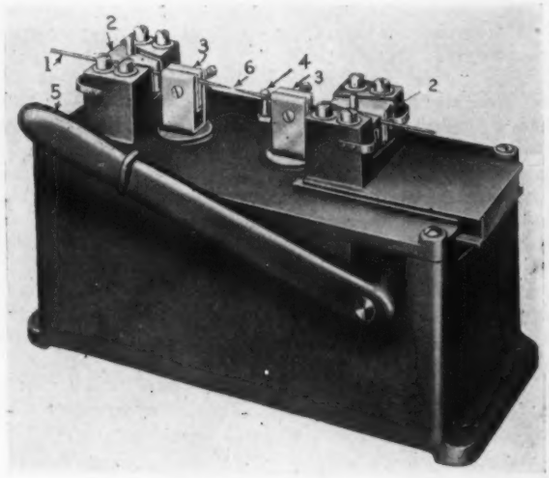
In an announcement by J. E. McLurg, vice-president of the British Empire Steel Corporation, Sydney, N. S., it is stated that with minor exceptions the plants of the corporation will be closed down July 19 for an indefinite period. Mr. McLurg said: "The rolling of the rails contracted for by the Canadian National Railways has been completed and the rail mill was closed down Saturday, June 28. We have no other orders on our books for rails and there is no prospect that we will secure further orders for rails for some months. Two batteries of coke ovens will be operating until July 15, after which one battery only will be operated. Blast furnace No. 1 and No. 8 will operate on basic pig iron until July 15, when No. 1 furnace will be blown out and No. 8 will be operated on foundry pig iron from July 15 to 21. All open-hearth furnaces will operate to capacity until July 15, when they will cease producing. The blooming mill, billet mill, rod, bar, wire and nail mills will operate until July 19, when all orders on hand and tonnage for stock purposes will be completed.

"The Trenton, N. S., plant of the Nova Scotia Steel & Coal Co. will complete all orders on hand early in July, and as this plant will likewise be closed down the same action is being taken there to reduce idle expenses."

Following the announcement by Vice-President McLurg, the Canadian National Railways placed an order with the corporation for 30,000 tons of steel rails. This order is expected to stave off the threatened three months' shut down of the steel plant at Sydney.

Electric Wire Pointer

Operating from any lamp socket, the wire pointer illustrated has been brought out by the New England Sales & Engineering Co., Worcester, Mass., for use in connection with wire-drawing apparatus. In operation the wire is clamped between the terminals 2 and sec-



Resistance Pointer for Wire Plants

ondary terminals 3. The switch 4 is pushed and held until the wire is a cherry red at point 6. Then the switch is thrown off and the handle 5 pulled, stretching the wire until it breaks at 6. At the break the wire is drawn out to a conical point, which may be inserted readily in the die. This device will point high-carbon and low-carbon wires, the length of the point being governed by the amount of heat applied and the pull on the lever. The net weight of the device is 50 lb., with shipping weight 65 lb., and operation is on either 110 or 220-volt alternating current.

The American Electro-Platers' Society, at its twelfth annual convention held in Milwaukee, July 1 to 3, selected Montreal, Que., Canada, as the place of the 1925 convention.

AMERICAN MACHINERY TRADE

Exports and Imports in May of Machine Tools and Other Machinery

WASHINGTON, June 30.—United States exports of machinery in May were valued at $29,167,698, as against $28,547,954, in April. Imports of machinery in May were valued at $599,296. Included in the exports was metal-working machinery in May numbering 3299, valued at $615,482, as against 5728, valued at $510,439, in April.

For the eleven months of the fiscal year the machinery exports at $290,173,839 exceeded last year's (eleven months) of $237,733,754 by 22 per cent. The largest item, agricultural machinery, was $56,182,309, compared with $33,534,881 last year.

In the May figures, agricultural machinery led, with $6,964,939; oil well machinery, $3,461,503, and typewriters, $1,293,611, were the only others above $1,000,000.

Imports of Machinery into the United States

(By Value)

	May, 1923	May, 1924	Eleven Months Ended 1923	Eleven Months Ended 1924
Metal-working machine tools	$35,484	$33,200	$340,493	$362,110
Agricultural machinery and implements	406,009	72,753	2,513,288	687,728
Electrical machinery and apparatus*	234,812	33,577	413,551	375,585
Other power generating machinery	60,052	509	1,855,759	†78,271
Other machinery	296,060	289,118	2,326,637	3,171,729
Vehicles except agricultural	345,893	170,139	1,973,556	2,243,526
Total	$1,378,310	$599,296	$9,423,284	$6,918,949

*1923 figures revised.
†Beginning Jan. 1, 1924.

Metal-Working Machinery Exports

	April, 1924 Number	April, 1924 Value	May, 1924 Number	May, 1924 Value
Lathes	48	$86,850	47	$78,171
Boring and drilling machines	120	28,866	196	62,879
Planers, shapers and slotters	13	14,438	27	29,303
Bending and power presses	32	22,471	21	46,571
Gear cutters	89	43,695	47	19,288
Milling machines	23	30,524	21	25,676
Thread-cutting and screw machines	38	32,570	32	29,759
Punching and shearing machines	22	9,753	13	3,171
Power hammers	20	10,963	31	16,950
Rolling machines	1	275	..	.....
*Sharpening and grinding machines	263	101,790	245	161,921
Chucks, center, lathe, drill and other metal-working tools	3,631	23,088	1,220	23,406
Pneumatic portable tools	1,428	105,156	1,399	118,387
Total	5,728	$510,439	3,299	$615,482

*Includes number of external and internal grinding machines only; "other sharpening and grinding machines" are now reported by weight instead of by number.

Machinery Exports from the United States

(By Value)

	May, 1923	May, 1924	Eleven Months Ended May, 1923	Eleven Months Ended May, 1924
Locomotives	$151,911	$278,014	$4,948,122	$3,641,610
Other Steam Engines	47,603	4,484	1,089,329	423,518
Boilers	69,683	158,520	1,142,438	1,738,039
Accessories and Parts	315,833	315,796	3,170,384	3,520,057
Automobile Engines	879,878	244,715	4,726,224	3,844,118
Other Internal Combustion Engines	635,334	603,676	4,474,088	5,787,964
Accessories and Parts for	270,611	311,445	2,675,257	3,394,253
Electric Locomotives	210,009	150,989	2,819,283	1,823,950
Other Electric Machinery and Apparatus	636,756	668,543	6,324,400	8,372,884
Excavating Machinery	145,796	104,379	1,449,775	1,634,289
Concrete Mixers	74,530	60,036	531,684	550,952
Road Making Machinery	112,511	174,141	540,483	1,049,254
Elevators and Elevator Machinery	149,776	144,636	1,690,772	1,959,160
Mining and Quarrying Machinery	583,177	586,909	7,019,879	9,351,038
Oil Well Machinery	402,836	3,461,503	4,392,195	6,604,289
Pumps	508,786	563,942	6,089,916	6,991,822
Lathes	57,138	78,171	642,282	1,136,349
Boring and Drilling Machines	42,106	62,879	547,667	616,177
Planers, Shapers and Slotters	17,256	29,303	219,138	250,160
Bending and Power Presses	27,038	46,571	160,179	408,577
Gear Cutters	17,787	19,288	142,812	337,149
Milling Machines	24,914	25,676	407,329	386,612
Thread Cutting and Screw Machines	71,476	29,759	329,389	575,060
Punching and Shearing Machines	14,167	3,171	123,700	122,226
Power Hammers	8,150	16,950	130,146	165,043
Rolling Machines	3,000	.....	148,105	102,367
Sharpening and Grinding Machines	112,779	161,931	844,885	1,137,938
Other Metal Working Machinery and Parts of	398,765	324,878	5,050,247	4,067,428
Textile Machinery	586,458	930,141	8,828,184	7,975,417
Sewing Machines	709,582	944,582	7,602,920	9,462,575
Shoe Machinery	113,034	110,894	1,104,804	1,152,489
Flour-Mill and Gristmill Machinery	51,643	74,771	971,973	1,038,758
Sugar-mill Machinery	125,818	216,968	3,444,272	6,218,496
Paper and Pulp Mill Machinery	94,297	134,082	1,843,659	1,761,500
Sawmill Machinery	35,650	34,312	532,977	558,265
Other Woodworking Machinery	74,941	108,632	1,333,536	1,187,716
Refrigerating and Ice Making Machinery	198,171	179,976	1,874,321	1,120,011
Air Compressors	179,754	286,570	3,269,319	3,747,046
Typewriters	1,152,905	1,293,611	11,598,041	13,295,027
Power Laundry Machinery	94,297	144,184	873,358	939,770
Typesetting Machines	237,000	332,574	3,294,586	3,716,860
Printing Presses	340,334	435,304	3,858,836	4,526,217
Agricultural Machinery and Implements	5,019,875	6,964,938	33,534,881	56,182,309
All Other Machinery and Parts	8,334,316	8,345,764	92,937,980	107,480,010
Total	$23,427,687	$29,167,698	$237,733,754	$290,173,839

Production of Coal and Coke Smallest Since Strike of 1921

UNIONTOWN, PA., July 7.—Production of both coal and coke in the Connellsville region is at the lowest ebb since the strike of 1921. While conditions, perhaps, warrant some pessimism, there is still apparently foundation for the optimistic opinion voiced by many close observers that the bottom has been definitely reached and that a gradual upward trend will be noticed within the next 60 days. This is brought about largely by the number of inquiries being received in the region for both coal and coke, more especially for coal. These inquiries have developed into an occasional order but the strongest indication is of increased buying among consumers.

As to coke, the turn must come first in the iron trade. Until that takes place, there is little likelihood of any material change in the coke situation. However, it may be emphasized that the prospects of a dull summer, in both coal and coke, were admitted by operators generally many weeks ago and the effects have been very largely discounted.

The entire region, practically, with two major exceptions, is back on the 1917 wage scale. These reductions have been put into effect with no disorder or trouble. At one or two places, which were operating when the reduction was made, there was a day or two devoted to discussion of the matter on the part of employees, but the wage reduction was accepted without complaint after the matter had been given thorough consideration. The reduced wage had been in effect for many months in some few mines in the county, so that the general reduction of a fortnight or so was not unexpected. The only major exceptions to the reduced wages are the H. C. Frick Coke Co. and W. J. Rainey, Inc. These two big interests have given no indications when a similar wage reduction may be expected, although the general opinion in the region is that the lowered scale will be announced some time during the fall.

The Algoma Steel Corporation, Sault Ste. Marie, Ont., following the shutting down of its rail mill and two blast furnaces, has now shut down its 12-in. merchant mill. Officials point out, however, that the 18-in. merchant mill will continue in operation for some time longer. Other departments of the corporation's plant which are still operating include the coke ovens and No. 4 blast furnace. Ore and coal are still being received over the docks. At the present time there are some 1150 men employed at the plant, as compared with 2800 a month ago.

Considerable Gain in Iron and Steel Exports

Outgoing Shipments Still Much Below Last Year— May Imports the Largest in Eleven Months

WASHINGTON, June 30.—Exports of iron and steel products in May of this year totaled 154,136 gross tons, valued at $20,192,064, an increase of 22,860 tons over exports in April. Imports in May of this year aggregated 66,801 tons, valued at $3,761,667, an increase of 15,832 tons over imports in April, and making the highest total since June, 1923, when they amounted to 68,019 tons.

Imports of iron ore in May totaled 151,676 tons, compared with 149,815 tons in April and with 363,792 tons in May of last year.

The increase in exports was reflected principally in tin plate, the total outgoing movement of this product in May being 21,981 tons, as against 5924 tons in April. Increases in imports were shown in a number of products, including raw, semi-finished and finished. Pig iron imports increased to 25,220 tons in May, as against 17,171 tons in April.

There also were substantial increases in finished lines, including structural shapes, tubular products and wire rope. Study of sources of imports in May is interesting and shows that shipments from Germany constantly are making relatively large gains. Shipments credited to Germany itself are rather small, but, when combined with shipments from the Netherlands, whose exports are confined to blast furnace products, make a fair showing. Steel shipments credited to the Netherlands evidently have their source in Germany, but are credited to Holland because they pass through the port of Rotterdam.

Exports by Countries of Destination

(In Gross Tons)

	May		Eleven Months Ended May	
Plates:	1923	1924	1923	1924
Canada	10,197	8,089	77,839	72,940
South America	120	38	1,010	996
Japan	166	....	1,656	911
Cuba	103	499	712	1,015
Philippine Islands	8	342	597	1,027
Mexico	22	79	975	672
Galvanized Sheets:				
Canada	4,438	2,598	30,436	98,066
Cuba	1,832	1,114	8,408	8,881
Chile	202	132	2,615	2,080
Argentina	1,158	675	5,274	5,358
Philippine Islands	204	1,709	9,433	10,105
Central America	432	537	3,707	3,789
Japan	648	626	3,715	14,194
Mexico	625	568	5,511	4,854
Columbia	448	377	4,733	2,559
Black Steel Sheets:				
Japan	5,612	978	29,780	109,911
Canada	5,722	3,997	50,577	37,605
Argentina	1,136	155	3,854	1,187
Cuba	127	130	821	1,352
Philippine Islands	....	3	125	357
Tin Plate:				
Canada	3,769	2,642	22,163	26,594
Japan	4,339	1,143	22,791	42,412
Argentina	863	756	3,889	10,512
Uruguay	158	78	2,045	2,225
China	2,012	7,022	5,029	29,241
British India	....	3,924	191	14,430
Chile	440	33	1,136	2,665
Cuba	311	391	2,944	4,472
Mexico	188	413	2,165	3,078
Hong Kong	150	2,585	1,384	8,152
Italy	502	394	2,768	2,788
Barbed Wire:				
Cuba	1,616	675	7,584	7,851
Argentina	1,538	83	11,479	7,095
Australia	487	250	8,225	3,648
Mexico	374	537	3,471	3,574
British South Africa	330	574	4,733	4,505
Colombia	451	749	5,222	4,466
Brazil	1,040	1,677	12,711	16,071
Canada	1,551	261	5,776	2,395
Steel Rails:				
Canada	4,985	2,974	26,695	48,122
Japan	13,653	318	87,095	80,465
Cuba	5,325	1,032	35,339	34,130
Chile	206	5	5,329	9,303
Brazil	....	1,693	2,362	7,370
Philippine Islands	154	917	6,781	5,018
Chosen	....	....	11,669	1,178
Honduras	2,061	15	9,493	4,034
Kwantung	1,996	....	3,441	12,945
Mexico	269	572	5,045	7,460
Colombia	254	1,278	8,893	4,841
Argentina	73	....	1,252	1,266
Galvanized Wire:				
Japan	4,482	58	12,755	15,960
Argentina	2,108	63	16,117	6,961
Canada	1,793	596	13,836	12,870
Australia	313	226	9,500	3,850
Brazil	593	416	6,759	7,588
Mexico	288	372	3,246	3,388
Cuba	340	185	1,873	2,181
United Kingdom	316	129	2,701	2,220
Chile	1,598	21	5,719	1,469

Sources of American Imports of Iron Ore

(In Gross Tons)

	May		Eleven Months Ended May	
	1923 Number	1924 Value	1923 Number	1924 Value
Spain	64,676	7,550	136,858	112,286
Sweden	138,642	....	571,179	431,568
Canada	2,059	103	4,324	12,106
Cuba	55,712	30,572	572,300	517,318
French Africa	40,752	6,000	203,737	264,626
Other countries	61,951	107,451	490,173	864 482
Total	363,792	151,676	1,978,571	2,202,386

Exports of Iron and Steel

(In Gross Tons)

	May		Eleven Months Ended May	
	1923	1924	1923	1924
Pig iron	1,848	4,317	28,931	38,539
Ferromanganese	503	2	3,438	3,117
Ferrosilicon	94	5	886	1,027
Scrap	3,809	12,017	35,702	95,991
Ingots, blooms, billets, sheet bar, skelp	12,824	3,810	103,725	72,994
Wire rods	4,035	1,085	21,754	35,572
*Iron bars	.....	358	.....	5,960
Steel bars	15,408	10,680	151,193	123,598
Alloy steel bars	210	107	2,414	2,800
Plates, iron and steel	11,229	11,243	97,947	94,424
Sheets, galvanized	12,773	10,051	102,080	88,933
Sheets, black steel	12,137	5,693	91,311	158,632
Sheets, black iron	1,421	1,358	10,440	10,840
Hoops, bands, strip steel	4,286	3,343	35,525	35,258
Tin plate, terne plate, etc.	13,328	21,981	76,468	160,292
Structural shapes, plain material	11,646	9,179	99,973	93,933
Structural materials, fabricated	6,436	5,849	80,917	75,222
Steel rails	30,847	9,491	221,540	234,892
Rail fastenings, switches, frogs, etc.	5,263	2,729	35,027	37,896
Boiler tubes, welded pipe and fittings	18,292	22,224	152,905	206,806
Cast iron pipe and fittings	3,035	1,956	42,914	26,200
Plain wire	13,814	2,459	83,502	63,712
Barbed wire and woven wire fencing	8,917	6,420	74,436	65,976
Wire cloth and screening	109	155	1,454	2,032
Wire rope	598	356	5,307	4,259
Wire nails	4,788	1,558	30,304	46,259
All other nails and tacks	749	560	7,753	*7,262
Horseshoes	61	56	941	868
Bolts, nuts, rivets and washers, except track	1,393	1,462	16,764	16,262
Car wheels and axles	1,835	1,934	15,441	19,266
Iron castings	506	671	9,050	8,786
Steel castings	947	823	2,763	5,768
Forgings	248	204	2,341	2,197
Total	203,389	154,136	1,645,146	1,845,573

*Reported separately since January, 1923.

Monthly Exports, January, 1923, to May, 1924, Inclusive
(In Gross Tons)

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914...	2,406,218	221,582	145,720
*Average, 1915 to 1918...	5,295,333	438,462	1,468,026
Calendar year 1919.....	4,239,837	309,682	258,907
Fiscal year 1920.....	4,212,732	248,126	288,766
Calendar year 1920.....	4,961,851	217,958	216,873
Fiscal year 1921.....	4,168,619	129,541	82,549
Calendar year 1921.....	2,213,042	28,305	10,363
Fiscal year 1922.....	1,721,418	28,330	63,127
Calendar year 1922.....	1,986,297	30,922	107,201
January, 1923.....	123,190	2,482	12,253
February	133,902	2,786	9,357
March	163,920	2,881	14,066
April	177,471	1,844	14,863
May	203,389	1,848	16,859
June	171,183	2,960	12,278
Fiscal year 1923.....	1,816,329	31,891	137,757
July	168,558	2,966	8,357
August	161,426	3,117	11,232
September	172,499	2,148	12,610
October	152,511	3,294	13,442
November	186,956	3,198	16,347
December	177,844	2,750	11,073
Calendar year 1923.....	1,992,595	32,318	152,748
January, 1924.....	247,942	3,812	8,594
February	164,820	4,773	11,463
March	123,618	4,047	2,278
April	131,276	4,117	8,275
May	154,136	4,317	4,895
Eleven months.....	1,845,573	38,539	108,566

*Calendar years.

The greatest source of pig iron imports in May was credited to the Netherlands, with 5844 tons, while shipments credited to Germany amounted to 2844 tons. Other countries from which pig iron was imported included England, 5720 tons; British India, 5046 tons; France, 4510 tons; Belgium, 696 tons; Scotland, 360 tons; China, 200 tons. These shipments came into both Atlantic and Pacific ports.

Of the 4221 tons of rails imported in May, a large bulk came into Pacific ports. The greatest source of origin was Belgium, which provided 1835 tons, Canada ranking second, with 739 tons. Imports credited to Germany amounted to 674 tons, while those assigned to the Netherlands totaled 646 tons; shipments from England were 101 tons and from France 220 tons. A large portion of these rails were 50-lb. and over.

Of the structural imports, amounting to 4257 tons, 2568 tons came from Belgium; 1402 tons from France; 205 tons from Germany and 78 tons from England. Of the tubular products, which included cast iron pipe, amounting to 9914 tons imported in May, 4978 tons came from Belgium, 4395 from France, 294 from England and 95 from Germany. A great deal of this tonnage entered the Pacific ports.

Of the wire rope imports, amounting to 8375 tons in May, 8211 tons came from England, 99 tons from Germany and 62 tons from Italy.

Imports of Iron and Steel in Gross Tons
(Monthly Averages)

	Total Imports	Pig Iron	Ferro-alloys	Manganese Ore and Oxide*
1909 to 1913, incl.....	26,505	†14,132	....	....
1914 to 1918, incl.....	23,351	4,645	3,281	‡47,155
1919 to 1921, incl.....	23,901	5,708	3,710	37,115
1922	59,545	31,954	9,117	31,204
January, 1923.....	120,078	83,935	5,120	829
February	67,704	35,793	9,234	4,636
March	106,197	72,344	9,030	12,799
April	77,903	36,371	7,221	14,071
May	75,883	39,764	10,482	12,734
June	68,019	30,033	12,794	36,138
Six months' average...	85,964	49,706	8,980	13,535
July	53,464	19,760	12,381	23,824
August	45,439	14,564	7,334	23,026
September	36,611	8,353	9,744	35,175
October	29,882	9,349	9,372	16,842
November	26,364	9,299	5,073	14,790
December	27,009	12,355	2,307	12,003
Twelve months' average	61,217	30,652	8,343	17,171
January, 1924.....	26,675	10,587	3,033	23,081
February	42,269	15,482	4,847	4,430
March	39,278	16,919	3,941	46,067
April	50,969	17,171	7,371	29,729
May	66,801	25,220	5,501	31,993
Eleven months' average.	40,439	14,456	6,446	23,722

*Not included in "total imports."
†Included ferroalloys.
‡Average for three years, 1916 to 1918 only.

Exports by countries show that shipments were diversified to an unusual extent. While the tonnages going to individual countries were not large, the movements were scattered throughout the world and to this extent showed an improvement in the foreign trade of

Imports of Iron and Steel Into the United States
(In Gross Tons)

	May		Eleven Months Ended May	
	1923	1924	1923	1924
Pig iron.....	39,764	25,220	625,253	159,017
Ferromanganes	8,651	4,996	102,401	59,559
Ferrosilicon	1,831	505	16,929	11,350
Scrap	18,390	1,295	210,785	72,751
Steel ingots, blooms, billets, slabs and steel bars.....	699	5,434	24,775	33,116
Wire rods.....	30	875	2,481	5,837
Rails and splice bars..	2,945	4,221	20,547	29,329
Structural shapes....	737	4,257	9,976	17,907
Boiler and other plates	1	46	1,504	2,939
Sheets and saw plates.	139	93	983	2,842
Bar iron.....	826	248	9,626	5,056
Tubular products.....	440	9,914	2,999	25,477
Castings and forgings.	358	237	1,429	2,541
Nails and screws.....	127	155	726	586
Tinplate	542	142	9,852	1,444
Bolts, nuts, rivets and washers.....	43	42	164	176
Round iron and steel wire	230	544	2,331	3,286
Flat wire and strip steel	88	202	729	1,918
Wire rope and insulated wire, all kinds	44	8,375	420	9,183
Total	75,885	66,801	1,043,910	444,814
Manganese ore.....	11,191	31,993	270,472	260,960
Iron ore.....	363,792	151,676	1,978,571	2,202,386
Magnesite	20,921	17,989	114,291	61,796

American steel producers. It indicates their ability to compete with foreign makers and to penetrate numerous markets, rather than being compelled to confine shipments to a limited number of countries.

Secondary Metals in 1923

Compilations of the United States Geological Survey show the recovery in 1923 of about 318,000 net tons of copper, lead, zinc, tin, antimony, aluminum and nickel, and more than 515,000 tons of brass and other alloys. The value of these secondary metals is given as $205,418,600, compared with $143,891,700 in 1922. Except for zinc the increase was general to all the metals.

Copper recovered amounted to 193,200 tons, without including that from brass, which aggregated 217,700 tons additional, or a total of 410,900 tons. This secondary copper included 140,000 tons from new scrap and 270,900 tons from old scrap.

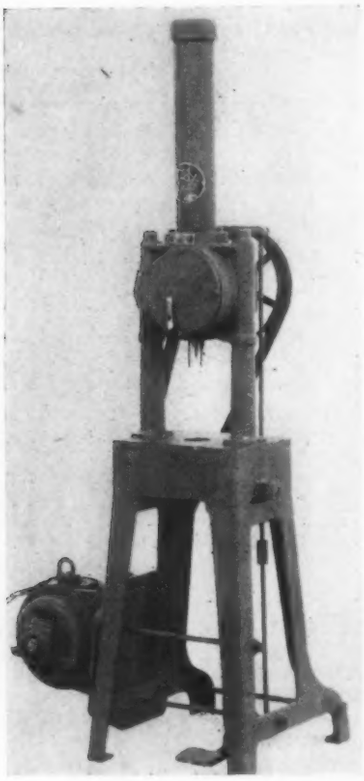
Similarly the tin recovered amounted to 30,210 tons, or 35.7 per cent as much as the amount of tin imported. Lead to the extent of 194,490 tons was recovered, in addition to the refined primary lead produced in the United States, which aggregated 630,342 tons. Zinc was recovered to the amount of 73,840 tons, in addition to about 63,000 tons recovered in brass. Antimony recovered in 1923 aggregated 8021 tons, aluminum amounted to 21,300 tons and nickel to 1550 tons.

Iron and Steel Production in Belgium

WASHINGTON, July 1.—Except for finished iron and rough castings, products of iron and steel in Belgium increased in May over April, according to a cable of the Department of Commerce from Acting Commercial Attaché Samuel H. Cross, Brussels. Production of pig iron in Belgium in May amounted to 246,520 metric tons, as against 239,530 tons for the preceding month; raw steel, 243,540 tons, as against 233,630 tons; rough castings, 6980 tons, as against 7110 tons; finished steel, 203,700 tons, as against 195,670 tons, and finished iron, 17,120 tons, as against 18,970 tons. Production of spelter in May totaled 13,220 tons, as compared with 12,930 tons. In May, as in April, 47 blast furnaces were in operation.

Presses for Broaching, Straightening and Other Work

A new power press known as Superflex and available in five sizes, ½, 3, 6, 12 and 20 tons, has been placed on the market by the Fox Machine Co., Jackson, Mich. The machine ranges in weight from 25 lb., which is the ½-ton machine and does not include the motor, to 3400 lb., which is the weight of the 20-ton press.



The 3-ton press is shown in the accompanying illustration. This machine is available without legs if desired, in which case the bed plate is arranged for bolting to a bench, the machine being driven from a motor or from a countershaft. It may be equipped with legs as shown, in which case it is furnished without the motor. The ram advances at the rate of 150 in. per min. and returns twice as fast, or 300 in. per min. The maximum ram stroke is 10 in. The bed is 12 x 16 in. and 6 in. high, and the distance between uprights is 9½ in. The total height of the machine on legs is 81 in. and without the legs 45 in., the height of the legs themselves being 36 in. The floor space occupied is 28 x 37 in., with motor, 28 x 22 in. without motor and 21 x 20 in. without legs.

On these machines the yielding pressure is secured by transmitting the power through a system of planetary gearing, in which the gearing, brake band and brake drum revolve in a chamber that is partly filled with lubricant. This provides adequate lubrication for the bearings and especially the brake band which holds the brake drum under a yielding pressure and providing the proper pressure for straightening, broaching, pressing in of bushings and similar work. All presses have quick return to the ram, this ranging from two to four the downward movement. The downstroke ranges from 94 to 200 in. per min. of ram travel, according to the size of the press.

The rams and principal gears are of chrome-nickel steel and hardened. Oil chambers are provided to indicate the amount of oil to be carried in the drum chamber and there are suitable adjustments for keeping the brake band in proper tension. On presses of more than 3-ton capacity a vertical up-stop to the ram is provided, this being adjustable to a distance equal to half of the ram stroke. The ram is returned at the top of the stroke by means of spring cushions.

Arthur G. McKee & Co., Cleveland, have been selected by the A. M. Byers Co. as engineers and contractors in connection with the design and construction of a pig casting machine to be erected at the Byers company's Girard, Ohio, blast furnace plant. The new equipment will include a single strand pig machine of the Heyl & Patterson type, a 150-ton ladle crane supplied by the Morgan Engineering Co. and two 90-ton Pollock short pour hot metal ladles.

Controlling Investments in Materials

WASHINGTON, July 7.—Methods used by a number of large manufacturers to control their investments in raw materials are set forth in a pamphlet just issued by the Department of Manufacture of the Chamber of Commerce of the United States.

In commenting on the importance of this subject and the contents of the pamphlet, E. W. McCullough, manager of the department, said:

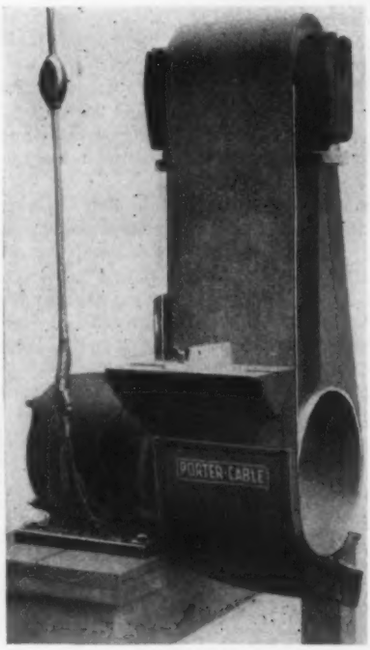
"This pamphlet is based on the experiences of a considerable number of manufacturing companies that have developed satisfactory methods of control, hence it is not a textbook on the subject, but rather it reports the tested procedure of these manufacturers in connection with the various phases of the general subject.

"Doubt has been expressed by some manufacturers, for example as to whether it is safe to do away entirely with the year-end physical inventory. This point is covered, and the actual procedure followed whereby the annual physical inventory is eliminated is presented."

A copy of the pamphlet will be furnished upon request.

Small Belt Sander and Grinder

The Porter-Cable Machine Co., Syracuse, N. Y., is marketing the belt sander and grinder illustrated, which has a grinding bed of 6¼ in. by 18 in. The bed may be used either in a vertical position as shown in the accompanying illustration or in a horizontal position.



A variety of abrasive belts permitting of a range of operations on metal, wood and other material may be employed. The abrasive belt is 6 x 54 in. and runs at a speed of 3300 ft. per min. The driving motor, which is of ½-hp. and runs at 1725 r.p.m., takes current from a lamp socket. The driving pulley is 7½ in. in diameter and mounted on the motor shaft as shown, and the idler pulley is 4 in. in diameter. The adjusting screws are located along the side of the frame as shown, so as not to interfere with the rapid changing of belts.

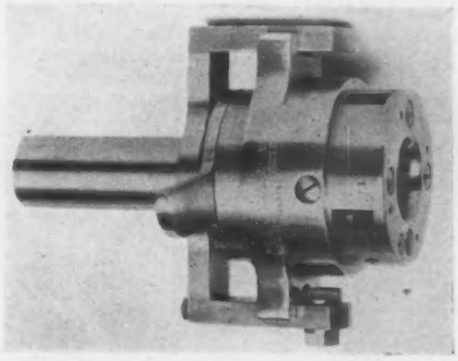
The table is 4 in. by 7 in. and may be tilted 45 deg. down and 15 deg. up. It is equipped with an angle gage and is removable for work requiring the full area of the grinding wheel, or it may be used as a stop when in a horizontal position. The dust hood may be removed conveniently. A portable pedestal may be furnished with the machine.

Fifteen per cent of the staff of the Canadian National Railway shops at Point St. Charles, Montreal, Que., will be laid off at the end of June until further orders. It is declared that similar action will be taken all over the system. A plebiscite vote was taken in the shops among the "Big Four" union members as to whether they would prefer a layoff of 15 per cent of the men or the complete closing of the shops during one week in each month. The result of the vote showed the majority to be in favor of the staff reduction.

Die Head for B & S Screw Machines

An H & G die head designated as style D and intended for Brown & Sharpe automatic screw machines has been placed on the market by the Eastern Machine Screw Corporation, New Haven, Conn.

In this design two arms from the floating shank, instead of one, provide a double drive effect that reduces friction and prevents any tendency to cramp while threading. Three sizes are available, a 9/16-in.



for the No. 2 machine, 7/16-in. for the No. 0 machine, and ¼-in. for the No. 00 machine.

This style of head is said to permit of increased production from the automatics, providing also threads of superior quality. When equipped with a handle for hand closing, the die head illustrated is adapted for hand turret machines.

Proposed Merger of Stamping and Enameling Companies

The merger of twelve stamping and enameling companies into a $25,000,000 corporation may be the outcome of negotiations which are now under way. The companies active in the negotiations include the Coonley Mfg. Co., Cicero, Ill.; the Vollrath Co., Sheboygan, Wis.; the Belmont Stamping & Enameling Co., New Philadelphia, Ohio; the Pola Enameling Co., Sheboygan, Wis.; the Federal Enameling & Stamping Co., Pittsburgh; the United States Stamping Co., Moundsville, W. Va.; the Columbia Stamping & Enameling Co., Terre Haute, Ind.; the American Stamping & Enameling Co., Bellaire, Ohio; the Strong Mfg. Co., Sebring, Ohio; the Falcon Tin Plate Co., the Republic Stamping & Enameling Co., and the Canton Stamping & Enameling Co., Canton, Ohio.

At the June meeting of the Connecticut Foundrymen's Association retiring officers were reelected as follows: F. W. Stickle, Capitol Foundry Co., Hartford, president; C. E. Bilton, Bilton Machine Tool Co., Bridgeport, vice-president; C. S. Neumann, Union Mfg. Co., New Britain, secretary; J. M. Woolson, estate of S. H. Barnum, New Haven, treasurer. These gentlemen and the following constitute the board of managers: A. F. Corbin, Union Mfg. Co., New Britain; F. B. Farnsworth, McLagon Foundry Co., New Haven; G. A. Ray, Taylor & Fenn Co., Hartford; S. Reynolds, Putnam Foundry & Machine Co., Putnam, and B. W. Spencer, Bradley & Hubbard Mfg. Co., Meriden. The annual outing of the association will be held at Tabard Inn, Morris Cove, near New Haven, on Saturday afternoon, July 19.

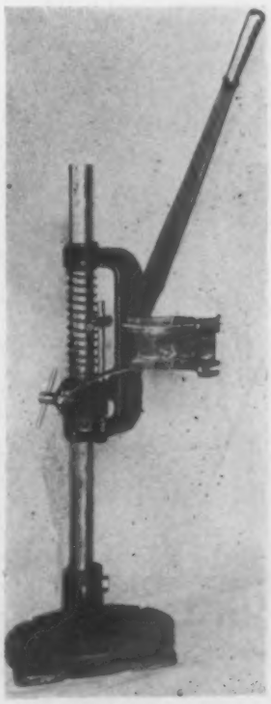
Simplified lines become effective in many industries on July 1, according to Ray M. Hudson, chief of the division of simplified practice, Department of Commerce. It represents the time when simplification becomes effective in a number of industries which, with the cooperation of the division, have discovered an excess of varieties of their products, and in which the producing, distributing and consuming groups have agreed that fewer sizes, styles or other variations would serve the purpose previously served by many items.

Research on Molding Sand

The American Foundrymen's Association has just issued a pamphlet on "Tentatively Adopted Methods of Tests and Résumé of Activities of a Joint Committee on Molding Sand Research." There are over 80 pages of printed matter containing, besides an introduction, various sections on the reports of the chairman of the joint committee, of the sub-committee on geological surveys, of the sub-committee on conservation and reclamation and of the sub-committee on testing methods. There are also chapters on bonding or cohesiveness tests, on revision of permeability test, on permeability tests, on the fineness test, on the dye-absorption test, on the chemical analysis of molding sand, on methods of sampling sand and on testing equipment. The organization of the joint committee was definitely effected in December, 1921, and a chairman and an executive committee were selected to exercise control over the entire investigation, except the handling of the funds required. In November, 1923, R. A. Bull, who had up to that time served as chairman of the joint committee, found it necessary to retire. He was succeeded by Walter M. Saunders, who is the present chairman.

Bench Drill Stand Accommodates Four Sizes of Drills

A bench drill stand which accommodates four sizes of drills ¼ to ½ in., without requiring separate adapters or the removal or change of drill parts, has been placed on the market by the Neil & Smith Electric Tool Co., Cincinnati. The drills may be clamped in the stand without alteration or change of any part of the portable tool.



The bracket carrying the drill incorporates the V-clamp features, which with two flat spring clamps that are arranged to be tightened up by thumb screws, serves to hold the drill rigidly. The bracket may be raised and lowered or swung around to any point on the vertical column and fastened in position. An adjustable depth gage is provided on the bracket guide rod to permit of drilling holes to a predetermined depth when desired. The spring supports the weight of the bracket and drill. The base is provided with T-slots for clamping of the work. The bench drill stand may be converted to a post drill stand by the use of a longer column and two holding brackets.

The length of the column is 24 in. and the drilling radius is 5 in. The vertical adjustment of the drill is 11 in. and the feed or vertical travel of the drill is 4 in. The weight of the stand, which is known as the "Ideal," is 30 lb.

Practically all of the 2500 operatives in the West Milwaukee car and locomotive shops, and 300 in the Green Bay, Wis., shops of the Chicago, Milwaukee & St. Paul Railway Co., who were laid off June 14, were recalled July 7 and are working on a five-day week basis, which was in effect prior to the lay-off.

The Interstate Commerce Commission again has postponed the effective date with regard to rules assigning privately owned cars to coal mines. The new date is Nov. 1.

New Steel Mill Shears

Some installations already have been made of a new type of patented shear lately developed by the United Engineering & Foundry Co., Pittsburgh. Company engineers set out to design a shear that would bring the front below the gage flush with the bottom knife so that the sheared material might be handled with greater ease and flexibility, and that the entire front below the gage would be available for installing a bar piler when the shear was to be used for cutting sheet bars. As a result of their study, it was found that they could incorporate other features, which have long been considered desirable but not always feasible.

By arranging the shear to straddle the roller table and placing the driving mechanism and motor directly over the roller table instead of at one side as in the usual design, it takes up only about one-third the floor space required by the older design of equal capacity. This arrangement makes it entirely independent of the roller table, and it will readily fit over tables having rollers the length of the shear knife.

Gears and the flywheel are inclosed in oil-tight easily accessible cast iron covers. The gears are of cast steel and the pinions are forged steel integral with the shafts. All gears have cut teeth. The bearings are bronze. The gears run in oil, furnished by an automatic return gravity oiling system for the bearings and gears. The knifehead is pitman operated, provided with a fully inclosed spring balance, patent for which has been applied for, designed to give practically a constant balance for all positions of the head. The clutch, which is patented, is fully inclosed and is positively thrown out mechanically. It is adapted for treadle, lever or solenoid operation.

On account of the balance feature and the clutch,it is claimed possible to operate the shear at relatively high speed. The No. 50 shear, for example, which has been in operation for several months as a cold sheet bar and jobbing mill slab shear at the plant of the Apollo Steel Co., makes 25 cuts a minute. It has capacity to cut hot 6 x 30-in. slabs; cold—three 8 x 3-in. bars or four 8 x 2½-in. bars with standard 42-in. length of knife. A shear for hot cutting was recently completed for the National Enameling & Stamping Co.

One of the illustrations shows a No. 40 shear with bar piler in the new sheet mill of the Weirton Steel Co., Weirton, W. Va. It has capacity to cut four 8 x 1⅞-in. cold sheet bars. A No. 41, up-cut shear for cutting 10 x 10-in. hot blooms is one of the two shears of this type built for the American Puddled Iron Co., Warren, Ohio.

The J. H. Taylor Co., Norfolk Downs, Quincy, Mass., maker of bronze, brass and aluminum castings, is operating a new plant that replaces one recently destroyed by fire.

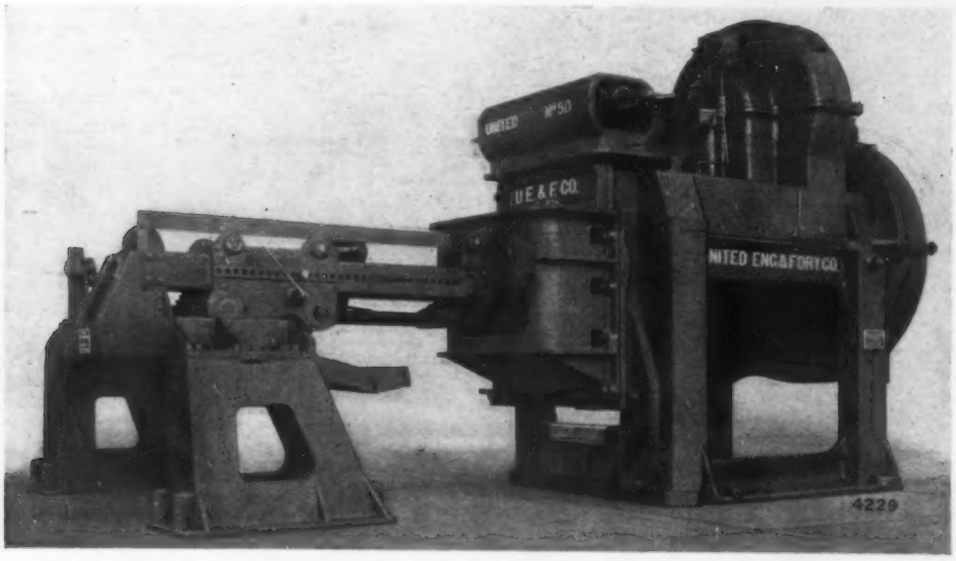
Another Addition to Engineering Library Service

Members of the engineering societies may borrow, through local public or college libraries, books that are rare or unusual and that are needed in research work, and which are not available through the regular lending service, through the adoption by the executive committee of the Engineering Societies Library, New York, of the policy of inter-library loans in use by important libraries. The rules of the American Library Association for the conduct of inter-library loans will be followed.

Members of the societies supporting the library wishing to borrow books of the character described should consult the local librarian, from whom the request for the loan should come. If it is feasible to grant the loan, the book will be sent to the local librarian for a limited time. Transportation expenses and insurance will be charged to the borrower library, which must assume all responsibility for safe return of the book.

Each request for a loan will be considered on its own merits, and granted, if this can be done without undue interference with the rights of other members. Periodicals will be lent only under unusual circumstances; for example, when the desired article is too long to photoprint at reasonable cost. Books that are extremely rare and those that are in daily use will not be lent.

Borrower libraries will be required to keep these books in their buildings and not lend them for home use, as such books are not lent by the Engineering Societies Library to members who visit it. Libraries wishing to borrow books should address the Engineering Societies Library, 29 West Thirty-ninth Street, New York.



Among New Steel Mill Shears Lately Developed by the United Engineering & Foundry Co. Are the No. 40 and No. 50 Here Shown. They straddle the roller table and are designed to take minimum floor space, in part as a result of the placing of the driving mechanism above

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ESTABLISHED 1855

THE IRON AGE

EDITORS:

A. I. FINDLEY — WILLIAM W. MACON — GEORGE SMART

C. S. BAUR, *General Advertising Manager*

Member of the Audit Bureau of Circulations and of Associated Business Papers, Inc.

Published every Thursday by the IRON AGE PUBLISHING CO., 239 West 39th Street, New York

F. J. Frank, *President* — PRINTED IN U. S. A. — George H. Griffiths, *Secretary*

Owned by the United Publishers Corporation, 239 West 39th Street, New York. Charles G. Phillips, *Pres.* A. C. Pearson, *Vice-Pres.* F. J. Frank, *Treas.* H. J. Redfield, *Secy.*

BRANCH OFFICES—Chicago: Otis Building. Pittsburgh: Park Building. Boston: 425 Park Square Building. Philadelphia: 1420-1422 Widener Building. Cleveland: Guardian Building. Detroit: 7338 Woodward Ave. Cincinnati: First National Bank Bldg. Buffalo: 833 Ellicott Square. Washington: 26 Jackson Place, N. W. San Francisco: 320 Market St. London, Eng.: 11 Haymarket S.W.1.

Subscription Price: United States and Possessions, Mexico, Cuba, $6.00; Canada, $8.50; Foreign, $12.00 per year. Single copy 25 cents.

Entered as second class matter, June 18, 1879, at the Post Office at New York, New York, under the Act of March 3, 1879.

The Half Year in Steel Output

THE first half of 1924 has furnished another of the spectacular swings in production for which the steel industry has been long famous. From an annual rate of 49,500,000 tons of ingots in March (nearer 50,000,000 tons in the early part of that month) the unexpectedly rapid falling off in the second quarter brought the country to a rate in June of but little more than 25,500,000 tons, or a shrinkage of about 50 per cent in three months.

Other comparisons may put the record of the past six months in a better light, namely: that in the first half of 1924 more steel was produced than in the entire year 1921, and again, that the total of 19,649,028 tons just announced by the American Iron and Steel Institute is more than 14 per cent greater than the average for the ten other half-year periods since the war. The exhibit for the eleven half-years is interesting:

Steel Ingot Production in the United States by Half Years Since 1918—Gross Tons

	First Half	Second Half
1919	17,460,854	16,233,941
1920	20,937,359	19,944,033
1921	10,289,952	8,934,132
1922	16,027,105	18,541,313
1923	23,326,965	20,158,700
1924	19,649,028	.....

There will be no great comfort in the comparison with 1921, when the country lived in considerable part on the stocks steel users accumulated in the wild scramble of the first eight months of 1920. But with all the careful buying and avoidance of stocks that have been in evidence for the past twelve-month, the performance of the first half of 1924 represents a scale of activity that does not suggest real depression, either present or impending.

A REMARKABLE record in British steel imports was made in May. At no time since the war or in the years just preceding it were they so large. Over 359,550 gross tons was received in May, or nearly twice the 182,600 tons of January. The monthly average to June 1 of 244,100 tons is nearly double the monthly average of 127,800 tons for 1923. Receipts of pig iron are double those of a year ago and there are increases, some 100 per cent, in several finished steel products, particularly bars. The major expansion, however, is in semi-finished steel. Ingots, billets and blooms are about double the amounts of a year ago, while the sheet bar figure is about threefold. The feature in semi-finished steel is Belgium's contribution of over half the total. Despite this large draft upon the steel works of other countries, the British industry is far from languishing. Output of both pig iron and steel in May was next to the largest for the year, comparing favorably with previous high records, and the May exports fell but little below the 1913 average. British steelmasters appear to be adjusting their operations to the new competitive conditions.

Length of Steel Cycles

THE "business cycle" has received much advertising in the past four years. The suggestion that the cycle represents a recent discovery is, of course, erroneous. It is the deliberate and widespread study of it that is new. All such study is good when properly conducted and properly applied, but a new danger is created, that of assuming that the business cycle, after it has come to be better understood, will continue running around its former courses.

Thus we have superimposed a new study, How will the cycle be affected by men's knowledge of its previous working? To illustrate: No prediction that an important change in business will occur at a certain time in the future can be universally accepted and yet prove true, for men acting upon this belief will change the course.

One difficulty in attempting to make practical application of knowledge gained from a study of the cycles is the varying length of these cycles; but these variations themselves may throw some light upon the way men modify their conduct by reason of knowledge of the cyclical nature of business.

The iron and steel industry has had a cycle of its own, related more or less to the general business cycle, yet showing its own times. One way of measuring the iron and steel cycles is to note the periods during which production was above or below a selected standard. A convenient line to take is 80 per cent of the highest producing rate previously attained. Using pig iron production as reported monthly by THE IRON AGE for the time before the war, and the American Iron

and Steel Institute reports of steel ingot production since, periods of light production have had the following length:

Production Less Than 80 Per Cent of Previous Maximum

	Months
1900	4
1904	6
1907-8	14½
1910-11	16½
1913-15	18
1919	5
1920-22*	22
Late 1923	3

*Late November, 1920, to late September, 1922.

We are now in a fresh period, which began late last April, when ingot production fell below a rate of 130,000 tons daily, or 80 per cent of the 162,000 tons daily, which was approximately the maximum, early in March.

Before the war the periods of light operation had tended to lengthen, while the periods of full operation tended to shorten, suggesting that the heavily increasing capacity was gaining upon the growth in demand.

The course since the war does not suggest even a tentative rule, unless it be that men are changing their policies more rapidly. This, however, is not definite, for it might be either that business men are more alert to act upon substantial facts or that they are less sure of their ground and therefore more vacillating. This is what needs to be studied.

Growth in Electric Power

THE Geological Survey has issued its final report on electric power generation in 1923 by public utilities. The very substantial increase in such power production in recent years means that the country is doing its work more efficiently. Heat and power are prime necessities, and their economic generation represents progress. An ideal condition would be for practically all power to be produced in the form of electricity. There are advantages of economy, while the superpower systems now developing in several parts of the country tend to keep down the investment by distributing the burden of peak loads.

The reports cover all public utility generation of electricity, except very small plants, estimated to represent less than 1 per cent of the total reporting. They include central stations, municipal plants, plants generating electricity for the operation of electric railroads and electrified steam railroads, Bureau of Reclamation plants, and the portion of the output of a few manufacturing plants that is sold for public use. They do not, of course, include electric generation for private use, as in the steel mills.

The annual production of electricity by public utilities as thus defined has been as follows:

	Kilowatt-Hours
1919	38,921,000,000
1920	43,555,000,000
1921	40,976,000,000
1922	47,659,000,000
1923	55,674,000,000

While 1919 was not so active a year industrially as 1923, there was not much difference and the figures given may be taken as representing fairly well the rate of progress. In the four years there was an increase of 43.0 per cent. This is at the rate of an annual increment of 9.36 per cent, which represents a doubling in 7.7 years. That is far above the rate at which our demand for power has been increasing. The production of coal does not supply a rule as to this, but it furnishes a suggestion. Since 1920 there has been no plain increase in production of bituminous coal, but repeatedly bisecting the 1920 production and picking out years of corresponding production one finds that after 1877 production of bituminous coal doubled successively in the following periods of years: 7, 14, 16 and 17, the last doubling being from 1903 to 1920.

Of the 1919 production of electricity, 37.5 per cent was by water power, the proportion decreasing to 34.8 per cent in 1923. There was merely a slightly slower growth of water power development, not unnatural in view of the much greater amount of construction work involved.

The 1923 production of 55,674,000,000 kilowatt-hours was made up of 19,348,000,000 kilowatt-hours by water power and 36,327,000,000 kilowatt-hours by fuel. The fuels consumed were 38,954,338 net tons of coal, 14,679,205 barrels of fuel oil and 31,433,205 thousand cubic feet of natural gas. Estimating the coal equivalent of the oil and gas, there would be represented about 43,522,000 net tons of coal.

In the economical use of our coal, electric power generation and distribution is important, and coking is also important. The bearing of the coal consumption by public utilities in generating electricity is that last year it constituted 7.1 per cent of our total production of bituminous coal, while about 15.0 per cent of the total coal was coked. Thus the two economical and progressive uses of bituminous coal were 22.1 per cent of the total produced. This represents a very substantial beginning. Another economy was production of electricity by water power, which would have required about 23,250,000 net tons of coal, or 4.3 per cent of the coal that was produced.

Finally, besides the growth in the production of electric power, the reports show a great improvement in the average efficiency of the coal-using plants. In 1919 they produced 625 kilowatt-hours with a ton of coal, and in 1923 835 kilowatt-hours, making an increase of exactly one-third.

METRICISTS, keen for the compulsory use in the United States of the metric system, are attempting to make headway through local chambers of commerce. A late indication is a presentment by the Chicago Association of Commerce, which, seemingly without deep consideration, has gone off on the wrong foot. Much is made of imagined savings. No less than $100,000,000 would be saved in a year in the item of the "support of children through the school term"; $75,000,000 would be saved in "lost productive power during school," and $25,000,000 in "lost earning power, failing in arithmetic." These are leading

items in a tabulation, credited to an expert, of an annual saving of $315,000,000. There is free admission that manufacturers would find a heavy expense in making the change; but what of that, seeing that the cost would be covered by the savings of the first few metric years, although it is not made plain how those same savings would be represented in the financial accounts of manufacturers. We might quite as well decree that only shoes suitable for roller skating shall be worn. Many like this means of locomotion and would be saved the expense of automobiles. Impressive totals of ethereal savings are pressed upon us with well nigh every argument of those whose chief interest in life is to have something changed. But even when these charted economies appear to have a more rational basis than a saving in the "productive power" of boys and girls at school, we have trained ourselves not to expect them to materialize beyond the stage of propaganda pure and simple.

PRODUCTION of bituminous coal, since the low point reached in the week ended April 12, has shown a gradual increase. From about 1,140,000 net tons daily in the low week, according to the statistics of the U. S. Geological Survey, there was an upward trend in twelve subsequent weeks until now the daily rate approximates 1,240,000 tons. In short, a gradual betterment is evidenced, amounting to an addition every working day of 1400 tons to the preceding day's output. The total output so far this year is one-sixth below the 270,000,000 tons of the like period of 1923.

CORRESPONDENCE

Malleable Castings in 31 Hours

To the Editor: The abstract of the paper under the title "Malleable Iron in 31 Hours" in THE IRON AGE, June 19, need occasion no misunderstandings if interpreted, in accordance with Dr. Hayes, as "laboratory demonstrations." Fearing that the reader may be led into false hopes by a lack of appreciation of the differences between laboratory and works conditions, the following is offered in explanation of the fact that there is no reason to expect a sudden and revolutionary decrease in "annealing" time in the malleable industry.

The facts published by Dr. Hayes are, in general, quite in accord with the knowledge of many if not all malleable metallurgists, and we need not question their accuracy. The sudden and accurately controlled changes of temperature, easily produced in the laboratory on a few pounds of material, cannot be commercially reproduced upon tons, because of the high heat capacity of the larger masses, and because of the greater chance of non-uniformity of temperature under such conditions. These conditions, which have nothing to do with the theory of graphitization, impose a heating time to 1700 deg. Fahr. of anywhere from 48 to 72 hr., instead of one hour in Dr. Hayes's conditions. They also add, perhaps, 36 hr. to cool from 1200 deg. Fahr., where Dr. Hayes ends his time. Similar considerations add some 15 or 20 hr. to the cooling time above 1320 deg. Fahr.

It is well understood that increased temperature shortens the time to destroy cementite. Temperatures as high as 1850 deg. Fahr. have been commercially used, but abandoned as yielding an inferior product. This inferiority is manifest in Dr. Hayes's tables of properties. His specimens are ½ in. in diameter, and should yield results 1000 lb. per sq. in. and 2 per cent better than those on the A. S. T. M. standard ⅝-in. malleable specimens. Nevertheless, in no case has he even then reached the specified strength of 50,000 lb. per sq. in. The writer has reason to believe that the metal used by Dr. Hayes will yield, under commercial conditions, strength well above 52,000 lb. per sq. in. and elongation well toward 20 per cent.

Such considerations set a maximum limit to the temperature of the hottest portion of a furnace. Conditions of heat transfer render it unavoidable that some parts of the charge be colder and hence require a longer time. Incidentally, the time goes up very rapidly with decreased maximum temperatures. This adds, in practice, many hours to Dr. Hayes's three hours at 1700 deg.

Dr. Hayes has pointed out further that the now common practice of omitting packing is an essential to speed but he hopes to solve the scaling difficulty, not by protecting the castings from the furnace atmosphere, as in pots or muffles, but by a control of that atmosphere. In the laboratory this is simple and successful. The practical difficulties are merely those of making a metallurgical furnace so nearly gas tight that an atmosphere containing between four and twenty times as much carbon monoxide as carbon dioxide, can be economically maintained within it, in spite of oxygen leakage into it.

It is difficult to say what value the various special, under-annealed products of Dr. Hayes may have. This is a question for the consumer rather than the producer. Dr. Hayes himself emphasizes their efficiency in shock resistance, the property which now gives malleable castings their greatest value. The writer must deny vigorously Dr. Hayes's assertion that these pearlitic materials machine freely. It is true that they present no difficulties in turning up a few specimens in the lathe, but the complaints of customers doing machine work on a production basis, when they receive castings accidentally containing even small amounts of pearlite are a sufficient cause for doubting his statement. These complaints are confirmed by measurements of tool loads and temperatures under laboratory conditions, as well as by the experience of drill manufacturers on the dulling of drills in such materials.

The entire purport of this discussion is to emphasize that, while Dr. Hayes has discussed ably one aspect of the conditions requisite to graphitization, he has added to the previous knowledge of the metallurgist nothing that will in any degree revolutionize the production of castings under shop conditions. If the reader will keep this clearly in mind, serious disappointment may be avoided.

H. A. SCHWARTZ,
Manager of Research.

National Malleable Castings Co.,
Cleveland, Ohio, June 27.

W. J. Rainey Coke Plants Closed Indefinitely

One thousand coke workers employed at the Allison No. 1 and No. 2 plants of W. J. Rainey, Inc., Uniontown, Pa., refused to go to work when the announcement was made July 1 that a wage reduction of 33⅓ per cent would be put into effect. By adopting this scale the company merely lined up with the other independent operators in the Connellsville district, which had made the change late in May. The new scale is virtually that of 1917. The H. C. Frick Co. has taken no action in the matter thus far.

At the New York offices of the Rainey company, it was learned that the management had suspended operations indefinitely at the plants where the workers left. Whether activity will be resumed on part or full time, or things remain at a standstill, will be determined likely by the end of the week.

JUNE STEEL OUTPUT

Yearly Rate About 25,600,000 Tons—Daily Rate Fell Off About 15.5 Per Cent

A further sharp decline in the steel ingot output was recorded in June. The daily rate last month was 82,259 gross tons as compared with 97,343 tons in May—a decline of 15,084 tons, or about 15.5 per cent. The contraction in May was 30,870 tons per day, or about 24 per cent. In April the corresponding decline was 20.4 per cent from the preceding month. The June rate is the smallest since January, 1922, when the daily rate was 72,764 tons, making last month the lowest in the last 29.

The statistics of the American Iron and Steel Institute show that the June output of the companies which made 94.84 per cent of the country's total in 1923 was 1,950,352 tons. Thus, assuming that the 5.16 per cent not reporting produced at the same rate, a total June output is indicated of 2,056,466 tons. The equivalent annual rate is about 25,600,000 tons, or about 47½ per cent of capacity.

The table gives the production by months of the different kinds of steel, together with the estimated daily rate for all companies. The total calculated production for monthly and daily outputs has been revised in the light of the final figures for 1923.

Monthly Production of Steel Ingots, Reported by Companies Which Made 94.84 Per Cent of the Steel Ingots in 1923

Months, 1924	Open-Hearth	Bessemer	All Other	Calculated Monthly Production All Companies	Approximate Daily Production All Companies, Gross Tons
Jan.	2,766,534	667,032	12,577	3,633,639	134,579
Feb.	2,902,641	695,905	14,085	3,809,185	152,367
March	3,249,783	706,801	15,260	4,187,942	161,075
April	2,575,788	573,381	12,356	3,333,535	128,213
May	2,060,896	425,099	6,648	2,628,261	97,343
June	1,637,660	310,070	2,622	2,056,466	82,259
6 mos.	15,193,302	3,378,288	63,548	19,649,028	125,955
1923					
Jan.	2,906,892	728,270	9,467	3,841,095	142,263
Feb.	2,613,564	669,903	10,797	3,471,843	144,660
March	3,046,309	799,525	12,841	4,066,680	150,618
April	2,974,579	772,485	13,933	3,963,736	158,549
May	3,136,558	847,418	16,719	4,216,355	156,161
June	2,821,239	737,845	15,483	3,767,256	144,894
6 mos.	17,499,141	4,555,446	79,240	23,326,965	149,532
July	2,658,449	680,884	11,496	3,531,458	141,258
Aug.	2,796,370	701,059	9,326	3,695,788	136,881
Sept.	2,562,771	613,709	8,602	3,356,776	134,271
Oct.	2,735,513	649,452	9,163	3,577,091	132,485
Nov.	2,348,361	616,335	9,309	3,134,321	120,551
Dec.	2,135,898	570,004	10,912	2,863,266	114,531
Total	32,736,503	8,386,889	138,048	43,485,665	139,825

The decline in the June daily rate of about 15.5 per cent compares with one of about 20 per cent in the pig iron production for June.

Operations in Mahoning Valley

YOUNGSTOWN, July 8.—Following the Fourth of July suspension, schedules of Mahoning Valley iron and steel companies are on a somewhat broader basis this week. The Trumbull Steel Co., largely idle last week, is running about 65 per cent.

The Youngstown Sheet & Tube Co. has added its Bessemer department to its active units and a second blast furnace in its East Youngstown group. Of nine blast furnaces in this district, the Sheet & Tube company is operating three.

The A. M. Byers Co., Pittsburgh, which operated its plant at Girard, Ohio, 50 per cent last week, now has all of its 88 puddle furnaces in action, as well as its two rolling mills.

Of 120 sheet and jobbing mills 43 were scheduled Monday, and eight of 17 tube mills. Steel-making schedules show 14 of 52 open-hearth furnaces melting and one of two independent Bessemer departments active.

The Republic Iron & Steel Co. has completely suspended its steel-making departments, including open-hearth furnaces and its Bessemer plant. A cracked bed plate in the blooming mill will require several days for replacement.

The Truscon Steel Co. is operating a 15 per cent addition to its plant at 60 per cent, and its original plant at 100 per cent.

Among the non-integrated sheet rollers the Newton Steel Co. is operating six sheet mills, Mahoning Valley Steel Co. six and Thomas Sheet Steel Co. four. The Falcon Steel Co. and Waddell Steel Co. are idle.

Conditions in England as Seen by W. H. Foster

Sheet mills in England are operating at a high rate on semi-finished steel imported from the Continent, states W. H. Foster, president of the General Fireproofing Co., Youngstown, who returned July 5 from a two-months' trip abroad. He visited England, France, Belgium, Holland and Wales.

Mr. Foster gained the impression that industrial and business conditions in Europe are much improved. He states the British Labor Government creates a favorable impression on Americans, as it appears capable and careful. He visited the company's English plant and devoted much time to its affairs. Mr. Foster does not look for any heavy export business from this country with European countries for some time.

Operating Without Lost-Time Accidents

The following plants of the American Sheet & Tin Plate Co. operated without a lost-time accident in May: Cambridge Works, Cambridge, Ohio; Dover Works, Dover, Ohio; Crescent Works, Cleveland; Leechburg Works, Leechburg, Pa.; Pennsylvania Works, New Kensington, Pa.; Old Meadow Works, Scottdale, Pa., and the Wellsville Works, Wellsville, Ohio; Chester Works, Chester, W. Va.; New Castle Works, New Castle, Pa.; Roll and Machine Works, Canton, Ohio; Sabraton Works, Morgantown, W. Va.; Farrell Tin Mill, Farrell, Pa., and the Wood Works, McKeesport, Pa., each had only one lost-time accident during May. These plants collectively employ close to 10,000 men.

Modernizing the Homestead Plant

Modernization work at the Homestead plant of the Carnegie Steel Co. is making steady progress. Excavation for the soaking pits of the open-hearth department now is well under way, and construction work is due to start in the next few weeks. Razing of the roll shop of the plant at Munhall to give space for a new machine shop also is in progress. The company some time ago placed the electrical equipment for a new blooming, billet and structural mill which is to replace some of older design and last week placed the contract for the blooming mill with the United Engineering & Foundry Co. This unit is a 44-in. mill and there remains to be placed a 38-in. billet mill and a 28-in. structural mill.

Youngstown Scrap Market

YOUNGSTOWN, July 8.—There is more activity among dealers in the scrap market, but buying by Valley steel companies is still negligible. Undertone of the market is strengthened as compared with recent weeks, and heavy melting scrap is up fully $1 per ton from recent low levels. Average price in this district is regarded as $16.50, though dealers would not hesitate in some cases to pay up to $17 for prime material.

Blast furnace interests are buying light tonnages, a recent sale of short turnings having been closed at $14 by such an interest.

The immediate future of the scrap market in this district hinges to a large extent upon the operations of iron and steel companies, and business with them is uncertain.

The report of the Ohio State Foundrymen's Association for May shows a slight increase in the melt as compared with April. The May figure is 75 per cent of capacity compared with 74.6 in April, while in May, 1923, the plants were operated at about 81 per cent of capacity. Stocks show a decline of 5 per cent from April. Stocks received also decreased.

European Conditions Improving Slowly

British Heavy Steel in Better Demand—Many Continental Makers Sold for Several Months—German Competition Bothers Luxemburg

(*By Cable*)

LONDON, ENGLAND, July 8.

PIG iron demand has improved, particularly from Scotland and Scandinavia and, with good sales, Cleveland market shows a firmer tendency. The general position, however, is unaltered and the firmness will, it is anticipated, not be maintained.

Hematite is dull and unaltered. Foreign ore is quiet. Bilbao Rubio is slow at 22s. to 23s. ($4.77 to $4.99) c.i.f. Tees.

There has been improved inquiry for finished steel of heavy quality, but business so far is only moderate. Light gage material is selling in fair quantities, to South Africa and South America especially. India has placed good contracts for heavy locomotives and general railroad material.

Improvement on the Continent

Continental business is better but sellers generally are reluctant to quote. Some are reported to be fully sold out to the end of September; others are offering quick shipments, but at unattractive prices.

Continental basic pig iron is being sold at 80s. ($17.36) f.o.b. Foundry iron is not being offered, and most furnaces are running on basic iron. Slabs are being sold at £5 12s. 6d. ($24.41) f.o.b.; blooms at £5 15s. ($24.95) f.o.b.

Sheets and Tin Plate

Tin plate is moderately quiet as regards consumers but fair placing of option contracts by merchants continues. Japan is inquiring for a fair tonnage, but so far no actual business has resulted.

Galvanized sheets are quieter, but makers are well sold out on the recent heavy buying movement and few are able to quote for shipment earlier than October.

Black sheets are dull and unchanged.

Galvanized and Black Sheets the Only Bright Spots in British Iron and Steel Market

LONDON, ENGLAND, June 26.—Quiet conditions continue to prevail in the iron and steel markets and buying still is on a meager scale. Of course, the summer months always tend toward little buying, especially in view of the annual holidays. But the trade as a whole is still in a bad way and, as far as pig iron is concerned, is restricted to purchasing of bare requirements. The fluctuations in Continental exchange rates make business with such purchasers a difficult matter, while with home steel producers inactive, their call for raw materials does not amount to anything of much importance. The result is that pig iron is being made for stock and prices are falling.

No. 3 Cleveland now can be obtained freely at about 89s. ($19.22), while merchant quantities have changed hands at still lower rates. In the same way hematite is dull, with sellers of East Coast mixed numbers willing to accept down to 96s. ($20.74) for substantial parcels. The only bright spot in the steel trade are the sheet branches.

An extraordinarily good demand has recently developed for galvanized sheets. Makers now have little to sell for shipment before October. Black sheets have been in good request, particularly for the Japanese market, and here the works are sold out for September. The reduction in the minimum price of tin plate to 22s. 7½d. ($4.89) basis I. C., f.o.b., resulted in a spurt of buying on the part of both home and export consumers.

Heavy Material in Poor Demand

The weak spot, however, is on heavy gage material, chiefly ship plates, angles and sections, and in these

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British and Continental prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.34 per £1, as follows:

Durham coke, delivered	£1	7½s.			$5.97	
Bilbao Rubio ore†	1	4			5.21	
Cleveland No. 1 foundry	4	14			20.40	
Cleveland No. 3 foundry	4	9			19.31	
Cleveland No. 4 foundry	4	7½			18.99	
Cleveland No. 4 forge	4	6½			18.77	
Cleveland basic	4	7½			18.99	
East Coast mixed	4	16	to £4	16½s.	20.83 to	$20.94
East Coast hematite	4	19	to 5	0	21.48 to	21.70
Ferromanganese	17	0	and 16	10*	73.78 and	71.61*
Rails, 60 lb. and up	8	10	to 9	0	36.89 to	39.06
Billets	7	15	to 8	5	33.63 to	35.80
Sheet and tin plate bars, Welsh	8	12½			37.43	
Tin plates, base box	1	2⅝	to 1	3	4.91 to	4.99
					C. per Lb.	
Ship plates	9	5	to 9	15	1.79 to	1.89
Boiler plates	13	0	to 13	10	2.52 to	2.61
Tees	9	7½	to 9	17½	1.81 to	1.91
Channels	8	12½	to 9	2½	1.67 to	1.77
Beams	8	7½	to 8	17½	1.62 to	1.72
Round bars, ⅜ to 3 in.	9	15	to 10	5	1.89 to	1.98
Galvanized sheets, 24 g.	18	5	to 18	10	3.53 to	3.58
Black sheets, 24 gage	13	5			2.57	
Black sheets, Japanese specifications	15	5			2.95	
Steel hoops	10	15	and 12	10*	2.08 and	2.42*
Cold rolled steel strip, 20 gage	17	0			3.29	

*Export price. †Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

(*Nominal*)

Foundry pig iron:						
Belgium	£4	2½s.	to £4	5s.	$17.90 to	$18.44
France	4	2½	to 4	5	17.90 to	18.44
Luxemburg	4	2½	to 4	5	17.90 to	18.44
Billets:						
Belgium	5	17½			25.50	
France	5	17½			25.50	
Merchant bars:					C. per Lb.	
Belgium	6	12½			1.28	
Luxemburg	6	12½			1.28	
France	6	12½			1.28	
Joists (beams):						
Belgium	6	7½			1.23	
Luxemburg	6	7½			1.23	
France	6	7½			1.23	
Angles:						
Belgium	8	0	to 8	5	1.55 to	1.60
⅛-in. plates:						
Belgium	8	0			1.55	
Germany	8	0			1.55	
¼-in. plates:						
Luxemburg	8	0			1.55	
Belgium	8	0			1.55	

business is exceedingly slow. British prices, of course, are well over Continental, particularly in export markets, and makers, in consequence, while having a few ship-building orders, hardly can be called brisk.

Merchants and manufacturers alike are rather perturbed at the new Indian steel protection bill, which now has become law, the increased tariff on merchant bars amounting roughly to about 35s. ($7.56) per ton. It is felt, however, that in the long run makers will benefit, as it will be some considerable time before Indian manufacturers will be in a position to make all their consumption requirements.

It is interesting to note that two vessels for American owners are to be built in this country, Palmer & Co. of Jarrow having secured the contract. Two orders for vessels, one for 6500 tons and the other for 8000 tons, for Morel & Co. of Cardiff, have been placed with the Northumberland Shipbuilding Co., Howdon-on-Tyne. At the recent launching of a new vessel, A Thomson, general manager Tyne Iron Shipbuilding Co., Willington Quay, remarked that shipbuilding was worse today than at any time of the slump. He had hopes, however, that conditions would improve.

HIGH LIGHTS ON GERMAN TRADE

Imports and Exports—Insolvencies—Shipbuilding —Metal Industry Labor Trouble—Lignite Price Fixing

BERLIN, GERMANY, June 23.—Figures of German foreign trade have taken an adverse turn during the last few months and imports have grown largely in excess of exports. While at the end of 1923 the value of the exports was larger than that of the imports, December figures being, imports, 492,367,000 gold marks and exports, 561,115,000 marks, foreign trade during January was just the reverse, with an import value of 568,162,000 and an export of 431,021,000 marks. The excess of imports over exports has increased during the present year and April shows 803,156,000 marks imports and 481,957,000 marks exports. Probably a change will take place in this respect in the course of the year, as soon as inland stocks of raw material have been replenished and home prices have come down sufficiently to be more attractive to customers abroad.

During May 322 firms, according to the *Frankfurter Zeitung*, have declared their insolvency. A great number of cases are due to the introduction of a more stringent application of the business supervision law. Since the stabilization of the currency during November the number of bankruptcies has increased remarkably and shows the following development: November, 8; December, 17; January, 31; February, 41; March, 68; April, 133; May, 322 cases.

Shipbuilding and Machine Tools

German dockyards have been fairly well employed during 1923, but the figures just issued show that the tonnage of the seagoing vessels built on home orders has been only about 50 per cent of the 1913 amount. The size of the ships has, however, largely increased. The total output has been about the same as during 1913, as the amount of foreign orders and orders for ships for the coastal and inland traffic were higher. During 1923 the yards had 1121 ships with 858,120 tons on the books. Of these 715 ships with 517,105 tons were finished, against 936 ships with 523,733 tons during 1922.

Naturally the machine tool line is especially affected by the adverse conditions prevailing in the metal and engineering industries. Future employment depends mainly on the developments in the money market, but improvements hardly can be expected before the international political and economic questions have been cleared up, and it is in the interest of the entire German industry that a settlement be effected without delay.

After the stoppage of work in the coal industry has been settled the Ruhr again is confronted with the threat of a huge strike in the metal and engineering industry over the question of working hours. It is mainly a fight for the 9-hr. day or of 8 hr. in three shifts on all jobs classed as heavy, instead of 12 hr. in shops with a two-shift system. Following upon the conflict in the coal industry, a strike in the metal and engineering industry would be a tremendous blow to Germany at present.

Lignite Production Holds Up Well

Growth of the lignite industry has taken place mainly during the last few years. The scarcity of fuel during the war and afterward brought the industry into a very favorable position; and many mines are worked whose products would under normal economic conditions not be salable, on account of their low calorific value. The anomalous position of this country made it possible to work these mines at a profit during the boom through which the industry passed. Even the depression which set in during the last few months has not brought a general price reduction for lignite.

The Ministry for Economic Affairs has conducted an inquiry into the cost of production and has decreed a 10 per cent reduction of prices, as it has been ascertained that they were unduly high. The Central German Lignite Syndicate has protested, pointing out that a number of works would not be in position to continue production at the reduced price. As lignite producers in other parts of the country already are selling below the official quotation, and as the general economic position of the country makes a reduction in the prices of raw products imperative, there is no likelihood that the decision of the ministry will be reversed and the industry will have to adapt itself to the new conditions. This may lead to stopping production at some pits, but greater improvements in the production and use of lignite will result.

Erection of power stations and other industrial works close to the pitheads, which are using lignite as fuel, together with the extraction of chemical products which has been developed lately, will keep a number of inferior mines going. During 1923 the German lignite production amounted to 118,200,000 tons, compared with 137,200,000 tons during 1922, a decrease of 14 per cent, while coal production decreased from 130,000,000 tons to 62,200,000 tons, or 52 per cent.

Other Prices May Have to Be Fixed

Though the fixing of prices at present affects only lignite, this measure may have a considerable influence on the level of prices in general. The movement for a reduction in the cost of raw material is also strongly aided by the dissolution of price conventions and cartels. The number of notices handed in for the discontinuation of these bodies has increased to over 250, of which up to now less than 50 per cent have been dealt with.

The coal mine owners are in a similar position. As long as the consumers were forced to pay any price demanded by the coal industry all mines could keep up production. But since the stabilization of the currency the competitive position of German coal in foreign markets has been weakened and, as home sales also are greatly reduced, the closing of some mines with a poor yield can be averted only if a possibility is found to utilize the coal close to the pithead and thus save transport cost. It is characteristic of the present slackness in the home market that, in spite of the four weeks' stoppage of work in the industry, the increase in coal imports has been only small and the hopes of a greater demand after the restarting of the mines has not been realized.

Luxemburg Iron and Steel Production in May

LUXEMBURG, June 24.—Pig iron: Cast iron, 5790 tons; basic, 177,397 tons; forge iron, 1120 tons; total, 184,307 tons. Steel: Basic, 149,014 tons; open-hearth, 2360 tons; electric steel, 432 tons; total, 151,806 tons.

Furnaces active at end of May included: Arbed (Acieries Reunies de Burbach-Esch-Dudelange), all six at Esch, all six at Dudelange and two at Dommeldange out of three. Société Metallurgique des Terres Rouges, all six at Belval; the five at Esch have been stopped.

Hadir (Société des Hauts Fourneaux et Acieries de Differdange), eight of the ten at Differdange; the three at Rumelange have been stopped. Rodange, all five. Société Metallurgique de la Loire, Steinfort, all three. Total, 36 out of 47 listed.

LUXEMBURG IRON AND STEEL

Little Business and Low Prices—Hard to Meet German Competition

LUXEMBURG, June 24.—During the period of recovery of the franc (middle of March to middle of May) the Luxemburg iron and steel plants met the progressive depression of the market. The prices, still rather high in the early part of May, were reduced later to a level somewhat at parity with British quotations. The movements of appreciated exchanges had little influence on them most of the month, but the sudden pressure of Anglo-Saxon currencies in the last days of the month was beneficial to business.

Stoppage of the blast furnaces in the Rhenish-Westphalian plants caused by the miners' strikes should have given an impulse to our trade with Germany, but this did not materialize, as the restriction of credits by the Reichsbank made a financial crisis adversedly affecting Germany. The uneasiness is far from having disappeared and we cannot expect to see a revival before several months. A slight improvement has taken place in Holland and the Scandinavian countries, but the Germans never cease to be on the export markets looking for orders.

Lower Railroad Charges

The new tariff of the Belgian railroads for the transportation of iron and steel products is about 15 fr. (70c.) per ton lower than the previous one, and has been in operation since May 15.

The volume of orders received by our leading plants has declined in May and, while the number of furnaces in blast was maintained, their activity was greatly diminished. For this reason, Luxemburg industrialists will sell under cost, to avoid the stoppage of the furnaces, which would increase the cost of production.

Prices on the Antwerp market are 530 to 545 Belgian francs ($24.86 to $25.56) for blooms; 560 to 575 fr. ($26.27 to $26.97) for billets; 580 to 600 fr. ($27.20 to $28.15) for largets; but our plants are not quoting prices. F.o.b., the quotations for joists are £6 10s. (1.25c. per lb.), and £6 12s. 6d. (1.28c.) for bars.

CAPITAL AND CREDIT FAMINE

German Iron and Steel Market Dominated by Shortage of Funds—Crisis Regarded as a Permanent One

BERLIN, GERMANY, June 16.—The capital and credit famine continues to dominate industrial conditions, not least the steel and iron branches. Many concerns have for this reason reduced production. Working capital is so short that in some industrial branches employers have had to resort to paying their men in kind; and manufacturers complain that they cannot get payment, and that they are offered orders only on condition of granting very long credit which, in view of their own shortage of money, they cannot give. From Austria and Czecho-Slovakia come complaints that perfectly solvent German firms fail to pay or cancel orders. At home the canceling of orders has taken large dimensions.

It has become clear that this is not a temporary but a permanent crisis, due to the exhaustion of German capital. The process was not understood as long as the Reichsbank, at the cost of the paper-mark interests created credit by inflation. The reports for 1923 of seven leading banks show that, on Dec. 31 last, deposits totaled only 1,161,800,000 trillion paper marks, or 1,151,800,000 gold marks (about $277,000,000), against 6,067,900,000 marks, or about $1,445,000,000 at close of 1913. The capital market is entirely dead. In April and May not a single loan or industrial bond was issued.

As the capital famine is due to fundamental causes, it can be remedied only by some new factor; and in regard to the remedy a controversy rages. The Reichsbank President Dr. Schacht holds that both the bank's anti-credit policy and its relatively low discount rate of 10 per cent must be maintained, though private credit still costs 60 to 90 per cent, and cannot always be had at that. "The remedy," said Dr. Schacht, "will be found only when foreigners invest money in Germany; and this will not be done until the Dawes recommendations are put through. Short-term credit in Germany still can be had. The Bourse rate for day money is about ¾ per mille per day, or approximately 26 per cent a year. Some well-secured 'stable-value' loans yield at present Bourse quotations 17 or 18 per cent, and 12 to 13 per cent may be had on sound mortgages. In view of the abundance of capital abroad, such rates ought to attract international capital. But until Reparations are settled no foreign lender can feel sure that his security may not be confiscated or impaired by some Ally act." Hence Dr. Schacht is pressing for a speedy Reparations settlement.

Another school of financiers holds that the Reichsbank's policy is mistaken; the bank, they say, should raise its discount rate until it approaches the actual market rate, and so encourage saving and reaccumulation of capital. Dr. Schacht refuses to raise the rate. As his policy is associated with the new currency stability and with the new balancing of State finances, there is little doubt that it will be persevered in.

Losses in Ruhr Coal Strike

Meantime industry is suffering. A further bad blow was dealt by the month-long Ruhr coal strike, through which over 7,000,000 tons or nearly the whole normal month's production of value 149,850,000 gold marks was lost. The strike was settled on the basis of 20 per cent increase in wages. The 7-hr. day for underground miners is maintained in principle, but in practice the miners have agreed to work 8 hr. In the iron and steel industries proper a 55 to 60-hr. working week is now generally in force. Apart from the May strike, the coal production this year has been satisfactory, being 8,787,000 tons in January, 9,726,000 tons in February, 10,825,000 tons in March 10,429,000 tons in April. Coal imports have fallen off, being 4,091,476 tons in January to April inclusive, as against a monthly average of about 2,000,000 tons in 1923, while exports totaled only 312,255 tons.

Steel and Machinery Markets Hard Hit

The steel market is very dull, owing mainly to the credit crisis. Prices of heavy iron and steel have not been changed in the last weeks, but the general price-level is downward. Between April 15 and June 12 the index number for 98 commodities fell from 152.34 to 141.32 (100 in 1914). Prices of tubes, bands, and some finished products have been cut. For bars there is no longer a fixed price, but the actual selling price is as much as 25 gold marks a ton below the highest figure of the year.

Machine-tool and drill manufacturers are engaged in a price struggle with outside dealers, who have been selling machines at very low prices. In this branch for weeks past has prevailed cut-throat competition, the cause of which is sometimes the compulsion to obtain cash at any sacrifice. Certain kinds of machine tools have lately been sold at about 65 per cent of their pre-war gold prices. The Association of Drill Manufacturers and the Association of Machine-Tool Makers report that locomotive and railroad-car manufacturers have sold their own machinery in order to realize money. The demand for machine tools from some quarters, in particular from shipbuilding, has of late increased. Buyers of other machinery demand a year's credit. There is a considerable demand for printing machines, cranes and motors; but agricultural machinery sells with difficulty, owing to the shortage of money among farmers.

Exportation of pig iron practically has ceased. The home pig iron market is dullish, but considerable quan-

tities of Luxemburg pig have been imported. The foundries, again owing to money shortage, buy pig iron only for immediate needs. The scrap market, which is a good indicator of conditions generally, is dull, with very low prices. The market for semi-finished material and rolling-mill products is quiet. Consumers expect a further drop in prices. Consuming manufacturers assert that, in view of the low gold wage level and of the sharp drop in the general commodities index, the prices of heavy iron and steel should fall further. A comparison of June prices with pre-war shows, in gold marks per metric ton:

	June, 1924	1914	Increase, Per Cent	*Equivalent, June, 1924
Coal (*Fettfoerder*)	20.60	11.25	83	$4.85
Foundry coke No. 1	31.40	17.00	85	7.60
Hematite	108.00	79.00	37	26.14
Foundry iron No. 3	96.00	70.50	36	23.23
Siegerland steel-making iron	108.00	69.00	57	26.14
Spiegeleisen	130.00	79.00	65	31.46
Steel scrap	60.00	55.00	9	14.52
Cast scrap	75.00	55.00	36	18.15
Ingots (Thomas quality)	90.00	82.50	9	21.78
Blooms	103.00	87.50	18	24.92
Slabs	125.00	97.50	28	30.25
Billets	120.00	95.00	26	29.04
Steel rails	140.00	118.00	19	33.88
Mine rails	125.00	117.00	7	30.25
Structural forms	132.00	110.00	20	1.43c.
Bars	135.00	95.00	42	1.46c.
Universal iron	140.00	97.50	43	1.51c.
Bands	190.00	115.00	65	2.05c.
Thick sheets	145.00	102.00	42	1.57c.
Medium sheets	160.00	116.00	38	1.73c.
Thin sheets	185.00	120.00	54	2.00c.

*Dollars per gross ton or cents per pound.

The disparities in the percentages are characteristic of the irregular and uncontrolled market, which is at the mercy of speculators. As long as the prices of the different products were really controlled by the Iron Industry Union and the Steel Syndicate, the ratio of each to that of before the war was approximately uniform.

INDUSTRIAL REPORTS FICTITIOUS

German Manufacturers Still on Paper Mark Basis and Making No Dividends—Plant Values Written Down to Trifles

BERLIN, GERMANY, June 16.—The question who will manage the late Hugo Stinnes' industrial interests is answered by the resignation of Dr. Albert Voegler of his position as director-general of Stinnes' original concern, the Deutsch-Luxemburg Co., in order to control the whole Rhine-Elbe Union. Dr. Voegler probably will sit on the supervision boards of the separate companies. He was lately appointed vice-president of the Austrian Alpine Montan Co. General Director Flick of the Charlottenhuette Co. has been elected to the supervision board of Stinnes' companies; and this brings into closer association the two concerns. Stinnes and Voegler already were members of the Charlottenhuette supervision board.

It is expected that the annual reports for the business year ending June 30 of the leading steel and iron corporations will show losses, due to the burdens imposed by the agreement with the French "Micum," and to other difficulties arising out of the Ruhr occupation. None of the first-class corporations have yet put their balance sheets on a gold mark basis, as required by the law of last winter. Minor concerns, which have done this, have reduced their nominal capital, which was in paper marks, to (on an average) one-tenth; but in most cases the new gold mark capital materially exceeds the pre-war gold capital.

Company Reports

The Deutsch-Luxemburg Corporation reports for the year ended Sept. 30, 1923, net profits of only 5,041,925,377,892 paper marks (about $1.25), which is carried forward. The balance sheet of this company, like that of others, is a pure fiction; the valuable mines, real estate and plant are listed at 6 trillion paper marks, or $1.50. The Gelsenkirchen Co. reports a loss on the business year of 837,418,278,703 paper marks; and the Bochum Cast Steel Co. net profits of 3,599,903,497,409 marks. In neither case is a dividend declared. The Hirsch Copper Co.'s balance sheet writes down all its real estate, its plant, its own railroad and its interests in other concerns to 1 gold mark each. The Orenstein & Koppel engineering concern does the same.

The Deutsch Werke Co., which manages on private business lines the former state arsenals and munition shops, and which now produces peace goods, made the considerable gross profits of 30,888,826 trillion marks in the business year ended Dec. 31, 1923. Since these concerns have been taken out of bureaucratic hands they have done very well. They are at present increasing their scope, the latest branch of manufacture being typewriters. The Ernemann Werke Co. of Dresden, which is controlled by Krupps, reports gross profits of 588,891 trillion marks, and pays no dividend. The combined Linke-Hofmann-Lauchhammer Co. reports (for nine months, January through September, 1923) gross profits of 235,681 billion marks; no dividend.

Electrical and Ore Companies

Siemens und Halske, Siemens-Schuckert, and the Elektrizitaets. A.G. (formerly Schuckert & Co.) of Nuernberg have also declared no dividend for the business year ended Sept. 30 last. The General Electricity Co. ("A.E.G.") is negotiating with the Latvian Government to establish and operate a power station on the Dwina.

The Siegerland Eisenstein (Ore) Co. reports output in 1923 of only 1,293,187 tons of ore, against 1,660,397 tons in 1922. The company states that unless railroad rates and coal prices are reduced native ore will not be able to compete with foreign.

JAPAN BUYS AMERICAN SHEETS

Large Export Interests Meet British Prices—Japanese Inquiries Include Rails and Tin Plate

NEW YORK, July 8.—Apparently revived by the recent action on the reconstruction bill by the Japanese Diet, business with Japan has reached fairly satisfactory proportions in some products during the past ten days to two weeks. Purchases of light gage black sheets are estimated to have totaled several thousand tons as a result of some American mills' meeting the current British quotations. The bulk of this business is said to have been taken by one prominent American export interest, which, following the acceptance of several thousand tons, returned to its former quotation of $92 to $93 per ton, c.i.f. Japan. Another large American export interest is reported to have booked a slightly smaller tonnage at the low British price and resumed higher quotations. A large Japanese export house has placed a total of about 2100 tons of light gage black sheets in the past ten days and another Japanese exporter is reported to have booked a still larger total of orders. Most of this business was booked in lots ranging from a few hundred tons up to as large as 1500 tons.

The recent tender of a Japanese oil company calling for 13,000 boxes of tin plate is reported to have been placed with the leading export interest, but the report is without confirmation. A current inquiry for tin plate is from the Japanese Army and specifies 4950 boxes for Kobe and 620 boxes for Yokohama, all special quality canners' tin plate.

Probably the outstanding inquiry from Japan at present is the tender of the Imperial Government Railways for 10,000 tons of 60 and 75-lb. rails and accessories, bids on which were opened today. This is claimed to be the last purchase for the fiscal year ending March, 1925. Bids will open July 10 on the Kioto Electric Railway tender for 2½ miles of 92-lb. grooved rails. This is the reissue of an inquiry made several weeks ago. The tender of the South Manchuria Railway Co. for 4000 boiler tubes opened today.

In addition to rails, tin plate and boiler tubes, current inquiries from Japan include tonnages of black sheets 13 and 27 to the bundle and a fairly large inquiry for blue annealed sheets from 3/32 in. to ⅛ in. thick.

Iron and Steel Markets

QUIETNESS AT MILLS

Operations Little Changed Following Shutdowns

Japan Buying Sheets and Tin Plate—Norfolk & Western Rail Inquiry

Shutdowns of both steel-producing and steel-consuming plants in the past week and the absence of buying have left the trade without indications of any new tendency. It was expected that with this mid-year closing of mills some business would accumulate, but in the absence of reports of additional capacity starting up there is no reason as yet to look for a larger output in July than that of June.

Steel ingot production last month was 2,056,466 tons, or nearly 22 per cent less than that of May. Putting total capacity at 54,000,000 tons a year, the June output was at a yearly rate of about 25,600,000 tons, or 47.5 per cent of capacity, while as the month closed the percentage was somewhat under 45.

In the first half of 1924 the country produced 19,649,028 tons of steel ingots, or 14 per cent more than the average for the other ten half-year periods since the war and 425,000 tons more than in all the year 1921.

In spite of the low rate of current steel works operations, there is little complaint of unemployment. Considerable new and repair work is under way in the Pittsburgh and Youngstown districts, and there is a pro-rating of working time.

In the Connellsville district a large independent coke operator has reduced wages 33 1/3 per cent to the 1917 scale. Plants at which the men refused to accept the new rate were closed down. The H. C. Frick Coke Co. has closed some of its properties, but the report that when these resume it will be at the 1917 scale is unconfirmed.

Japan has reappeared as a buyer of American sheets and tin plate. With the Steel Corporation 5000 tons of light sheets have been closed, and Bethlehem has sold 2000 to 3000 tons. The Steel Corporation has booked 40,000 boxes of tin plate for shipment to Japan and there are additional inquiries from that country.

The Imperial Government Railways, Japan, opened bids this week for 10,000 tons of 60-lb. and 75-lb. rails which it is expected will be rolled in this country.

Under the present restricted operations, steel-making costs are rising, a troublesome factor being the increasing percentage of rejections as consumers grow more exacting.

On the other hand, under the low rate of mill operations, with its lack of flexibility as to sizes, buyers are less able to get the prompt deliveries they seem to expect.

Prices are little changed, apart from the more common quoting of 2c., Pittsburgh, on plates. Some of the smaller plate mills are curtailing operating schedules.

Instances increase of the deferring of building and in the Central West some of the fabricating shops are in need of orders.

Following the recent slight improvement in the railroad equipment field, the week has brought orders for 30 locomotives, 674 freight cars (140 for foreign railroads) and 1100 steel underframes, also inquiries for repairs for 1000 cars.

The inquiry of the Norfolk & Western for 50,000 tons of rails, delivery to begin in October, is a reminder that in June of last year, or three months ahead of the usual time, large rail orders were coming in for 1924. There is no indication now of early buying for next year.

Including 25,000 tons for the Philadelphia-Camden bridge approaches, new projects appearing in the structural steel field call for 42,500 tons. Following heavy bookings a week ago, awards of the past week barely exceed 12,000 tons, of which public service power plants account for one-half and railroads for one-sixth.

Pig iron activity has subsided. In the Chicago district buying has been accompanied by new price concessions, but the market is now firmer; and this is true in the East, where furnaces are slow to quote for the last quarter of the year, as hope is entertained that prices will then be higher. Southern iron has settled to a basis of $18, Birmingham. In the Pittsburgh district the market is extremely dull and prices are untested.

Pig iron is now $19.29, the lowest point in more than two years, THE IRON AGE composite price having fallen from $19.38 last week. It was $26.04 one year ago.

Finished steel remains at 2.589c. per lb., THE IRON AGE composite price showing no change from last week. One year ago the figure was 2.789c.

Pittsburgh

Quiet Continues After Holidays—Pig Iron Market Very Dull

PITTSBURGH, July 8.—Steel business has not recovered to any appreciable extent from the interruption occasioned by the observance of the Fourth of July. Evidently steel consumers also observed both Friday and Saturday as holidays and mail orders awaiting steel companies yesterday morning were extremely light. No material increase is observed in steel plant operations. Indeed, some companies which figured on starting up yesterday morning following the holiday suspension were unable to do so, partly because the men failed to report for work, but chiefly because there was no considerable accumulation of orders during the shutdown.

In a general way, the market is quieter this week than it was last week, and since there has been a defi-

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	July 8, 1924	July 1, 1924	June 10, 1924	July 10, 1923
No. 2X, Philadelphia‡	$21.26	$21.26	$21.26	$28.26
No. 2, Valley Furnace†	19.00	19.00	20.00	26.00
No. 2, Southern, Cin'ti†	*22.05*	22.55	24.05	29.05
No. 2, Birmingham, Ala.†	*18.00*	18.50	20.00	25.00
No. 2 foundry, Chicago*	19.50	19.50	22.00	28.00
Basic, del'd, eastern Pa.	*20.00*	21.00	21.00	27.00
Basic, Valley furnace	19.00	19.00	20.00	25.00
Valley Bessemer del. P'gh.	22.26	22.26	23.26	28.27
Malleable, Chicago*	19.50	19.50	22.00	28.00
Malleable, Valley	19.00	19.00	20.00	26.00
Gray forge, Pittsburgh	20.26	20.26	21.26	27.27
L. S. charcoal, Chicago	29.04	29.04	29.15	36.65
Ferromanganese, furnace	107.50	107.50	107.50	120.00
Rails, Billets, Etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	38.00	38.00	38.00	42.50
O.-h. billets, Pittsburgh	38.00	38.00	38.00	42.50
O.-h. sheet bars, P'gh.	40.00	40.00	40.00	42.50
Forging billets, base, P'gh.	43.00	43.00	43.00	47.50
O.-h. billets, Phila.	43.17	43.17	43.17	47.67
Wire rods, Pittsburgh	48.00	48.00	48.00	51.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	2.15	2.15	2.20	2.40
Light rails at mill	1.90	1.90	1.90	2.25
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.42	2.42	2.42	2.67
Iron bars, Chicago	2.20	2.20	2.25	2.50
Steel bars, Pittsburgh	2.15	2.15	2.20	2.40
Steel bars, Chicago	*2.20*	2.25	2.25	2.60
Steel bars, New York	2.49	2.49	2.54	2.74
Tank plates, Pittsburgh	2.15	2.15	2.20	2.50
Tank plates, Chicago	2.25	2.25	2.35	2.80
Tank plates, New York	*2.19*	2.24	2.34	2.84
Beams, Pittsburgh	2.15	2.15	2.20	2.50
Beams, Chicago	*2.25*	2.35	2.35	2.70
Beams, New York	2.34	2.34	2.44	2.84
Steel hoops, Pittsburgh	2.75	2.75	2.75	3.15

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	July 8, 1924	July 1, 1924	June 10, 1924	July 10, 1923
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	3.50	3.50	3.50	3.85
Sheets, galv., No. 28, P'gh.	4.60	4.60	4.75	5.00
Sheets, blue an'l'd, 9 & 10	2.75	2.75	2.75	3.00
Wire nails, Pittsburgh	2.90	2.90	2.90	3.00
Plain wire, Pittsburgh	2.65	2.65	2.65	2.75
Barbed wire, galv., P'gh.	3.70	3.70	3.70	3.80
Tin plate, 100-lb. box, P'gh.	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	**$16.50**	$16.00	$15.50	$21.00
Carwheels, Philadelphia	17.00	17.00	17.00	20.00
Heavy steel scrap, P'gh.	**17.00**	16.50	16.00	18.50
Heavy steel scrap, Phila.	15.50	15.50	15.50	17.00
Heavy steel scrap, Ch'go.	**14.50**	14.00	13.50	17.25
No. 1 cast, Pittsburgh	17.50	17.50	17.00	20.50
No. 1 cast, Philadelphia	**18.00**	17.50	17.50	21.50
No. 1 cast, Ch'go (net ton)	16.75	16.75	17.00	20.50
No. 1 RR. wrot. Phila.	**17.50**	17.00	16.50	19.00
No. 1 RR. wrot. Ch'go (net)	**12.50**	12.00	11.50	15.00
Coke, Connellsville,				
Per Net Ton at Oven:				
Furnace coke, prompt	$3.00	$3.00	$3.25	$4.75
Foundry coke, prompt	**4.25**	4.00	4.50	5.50
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	*12.50*	12.62½	12.87½	14.87½
Electrolytic copper, refinery	*12.00*	12.25	12.50	14.25
Zinc, St. Louis	5.77½	5.80	5.82½	6.05
Zinc, New York	*6.12½*	6.15	6.17½	6.40
Lead, St. Louis	*6.65*	6.70	6.95	5.70
Lead, New York	7.00	7.00	7.12½	6.00
Tin (Straits), New York	*43.62½*	45.00	42.00	38.25
Antimony (Asiatic), N. Y.	8.30	8.37½	8.35	6.75

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Composite Price, July 8, 1924, Finished Steel, 2.589c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets

These products constitute 88 per cent of the United States output of finished steel

July 1, 1924,	2.589c.
June 10, 1924,	2.610c.
July 10, 1923,	2.789c.
10-year pre-war average,	1.689c.

Composite Price, July 8, 1924, Pig Iron, $19.29 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham

July 1, 1924,	$19.38
June 10, 1924,	20.54
July 10, 1923,	26.04
10-year pre-war average,	15.72

nite decrease in the demand for pipe, the market does not longer have the saving grace of at least one active spot. Naturally, prices are no stronger than they have been. On the contrary, the effort to hold prices was rendered more difficult by the extremely limited proportions of current purchases. Costs are rising, not only because of the slow rate of plant operations but because buyers, as usual in times like the present ones, are extremely exacting in their specifications. It is reported that rejections on the score of quality have grown very numerous in the recent past, and that in some cases as much as 30 per cent of the product has been thrown back on manufacturers. It can be readily seen what this means to producing costs. Incidentally, this condition may partly explain why so many of the steel companies have for some time found it possible to get along without purchases of outside scrap.

All signs of life have passed out of the pig iron market and sales of the past week plainly reflect the well covered position of the larger consumers. It is at least two years since coke production was as light as it is at present, but there is no scarcity and prices show a downward tendency, particularly on furnace grade. A large independent operator in the Connellsville district, the only one which did not go along with the wage reduction announced by other independent producers late in May, put the cut into effect as of July 1, and in that district only the H. C. Frick Coke Co., subsidiary of the Steel Corporation, still is paying the 1922 scale of wages. Operation of the Frick mines and coke plants will be largely suspended over the next two weeks and there are reports that when there is a resumption it will be at the independent scale of wages. Unemployment is pretty heavy in the union coal mining districts in this part of the country, because the operators cannot pay the scales and meet the prices named by operators not bound by an agreement with the union.

Despite the low rate of steel plant operations, there

is surprisingly little outright unemployment, this because of the practically uniform practice of steel companies to pro rate the work among as many men as possible. Little talk is heard of a possible wage reduction, which is somewhat surprising in face of the fact that present prices represent no margin of profit at today's costs.

Taking the Pittsburgh district as a whole, there has been no gain in finishing mill operations, while active ingot capacity is down from where it was a week ago and there has been a net loss of one blast furnace for the week. The Youngstown Sheet & Tube Co. has put on a furnace, but the Jones & Laughlin Steel Corporation and the Bethlehem Steel Co. of Johnstown each has taken off one furnace. Active ingot capacity in this and nearby districts is between 30 and 35 per cent. Few in the trade expect that this month will bring any definite gain either in demand for steel or in plant operations. If there is no further loss during the remainder of this month, most companies will be satisfied.

Pig Iron.—Business has dwindled further since a week ago, and sales of the past week make up a smaller total than those in the weeks immediately preceding the recent flurry of buying. That activity was accompanied by price weakness and now that there is no new buying to speak of, it cannot be said that prices are any stronger. We continue the prices of a week ago, but since they have not had the test of actual demand, they are merely nominal. Bessemer iron is being offered at $20 from a western Pennsylvania furnace having the same freight rate to Pittsburgh as the Valley furnaces, and if there was any business in that grade, it would be difficult for Valley furnaces to maintain their present minimum price of $20.50. Iron City Sanitary & Mfg. Co. was able to secure a portion of its requirements of foundry grade at $19, Valley furnace, although the iron will not be shipped from a Valley furnace. Inquiry of the United Engineering & Foundry Co. for 1000 tons of low phosphorus iron still is open. Eastern iron of that grade is offered at $28.42 to $28.66, delivered, which compares with $28.76, the delivered Pittsburgh price on Valley iron.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.75 per gross ton:

Basic	$19.00 to $19.50
Bessemer	20.50 to 21.00
Gray forge	18.50 to 19.00
No. 2 foundry	19.00 to 19.50
No. 3 foundry	18.50 to 19.00
Malleable	19.00 to 19.50
Low phosphorus, copper free	27.00 to 28.00

Ferroalloys.—Important developments are lacking. Interest in the market on the part of consumers is practically nil and prices of all alloys lack the test of demand. Consumers are showing no forward interest in 50 per cent ferrosilicon, but for prompt delivery the prevailing price is $72, delivered. Indications are that there will be no contracting for this material for long periods, but that buyers will cover their needs as they develop. There is a quotation of $75 on this alloy, but no sales are noted here at that figure. There are occasional sales of spiegeleisen of fair size, but usually at below the public quotation of producers. There are no intimations that less than $107.50, seaboard, can be done on ferromanganese. Prices are given on page 113.

Semi-Finished Steel.—Demands still are too limited to provide a true line on prices. Mills in this and nearby districts still are quoting $38, Pittsburgh and Youngstown, for billets and slabs and $40 for sheet bars, but on the few inquiries that have been out recently, these prices were not interesting to buyers. Billets from makers' stocks have been offered as low as $35, and there are unconfirmed reports that a price of $33 has been named in an effort to reduce accumulations, but no mill would accept specification business at those prices as yet, since in not a few cases that would mean the automatic revision downward of prices in contracts against which considerable tonnages are yet unspecified. There is an undertone of weakness to the market, induced by the dullness, and since finished products have not stopped declining in price, it is probable that non-integrated manufacturers will exert pressure for lower prices. Universal Steel Co., Bridgeville, Pa., is seeking 3000 tons of high carbon slabs. Much uncertainty exists as to real prices of forging billets, and there is not enough demand for skelp to establish prices. Such business as is being done in wire rods is at $48, base, with occasional waiving of the size extra, but no large tonnages are moving. This week's steel works operations will be no heavier than those of last week, because gains in some directions are offset by decreases in others. We estimate active ingot capacity in this and nearby districts for this week at between 30 and 35 per cent. Prices are given on page 113.

Iron and Steel Bars.—The leading interest is taking steel bars business at 2.15c., base, Pittsburgh, and that being the common quotation of independents, there is not much excuse for a higher quotation. Indeed, there are reports that 2.10c., base, has been named in some instances, and it is not refuted very positively that this price could be done on a round tonnage. Tonnages of that sort are not coming out in this district, and on the small lots wanted all are quoting 2.15c. Iron bar prices are unchanged, but demand is so light that it is probable that concessions would be made if that would induce purchases. Prices are given on page 112.

Structural Material.—All mills in this and nearby districts now are openly quoting large structural shapes at 2.15c., base, Pittsburgh, and as no lot is too small to command that price, the inference is that really large tonnages could be placed for less. It is admitted that no business can be secured at that price outside of the area where freight rates favor Pittsburgh mills. Upward slant of structural demand is being felt by local shops, most of which are busier now than they were a short time ago. Plain material prices are given on page 112.

Plates.—This product still is the quietest of all finished lines with Pittsburgh and nearby mills, and prices show more of a yielding tendency than is observed in other products. Stiff concessions have to be made to secure business outside the area where freight rates are favorable to local and nearby mills and those who want orders find they have to go outside that area to secure them. On local business the effort is to maintain 2.15c., base, Pittsburgh, but as only small lots for quick shipment command that price, it is commonly believed that large tonnages would induce concessions. Prices are given on page 112.

Wire Products.—Business is slow with all producers. Road salesmen of most companies are taking their vacations and mail orders are of a size to suggest that distributors are having no unusual demands thrust upon them. Deliveries are so promptly made that neither the jobbers nor manufacturing consumers are disposed to order ahead of actual requirements. Observance of quotations is reasonably close, but there are occasional reports that nail business has been lost at $2.90, base, per keg, and that quotation of $2.65, base, per 100 lb. on plain wire does not always fetch the order. Coated nail prices are weak, due to the fact that there are so many more sellers than buyers just now. Prices are given on page 112.

Steel Rails.—Slight increase in orders for light rails is reported by some makers, but the gain has been at the expense of prices in most instances. As a sales basis on billet rails, 2c., base, has pretty well disappeared, and in the effort to secure business some makers have not stopped at 1.90c. Rail steel rails are quoted as high as 1.75c., base, but actually have sold at 1.65c. General demand is of moderate proportions and probably will remain so as long as the depression in the coal industry lasts; there are no indications of early betterment in coal business in this district, and it is generally conceded that much of the Lake business this year will go to other fields.

We quote light rails, rolled from billets, 1.90c. base (25-lb. to 45-lb.); rolled from rail steel, 1.65c. to 1.75c. base (12-lb. to 45-lb.), f.o.b. mill; standard rails, $43 per gross ton mill, for Bessemer and open-hearth sections.

Sheets.—While there are no claims that business is any better than it has been, it is the majority report that bookings at least are as good as they have been. The one interesting development of the week has been the recurrence of Japanese buying of light gage sheets, which has enlarged the order book of the American

Sheet & Tin Plate Co. to the extent of 5000 tons. Prices are no stronger than they have been and minimum quotations are fairly easy to obtain, particularly on black sheets. Sheet mill operations of the industry as a whole this week are about 35 per cent of capacity. The monthly meeting of the National Association of Sheet and Tin Plate Manufacturers is being held today in Canton, Ohio. Discussion of the trade extension plan is the principal business of the gathering. Prices are given on page 112.

Tubular Goods.—Considerable inquiry lately has developed in line pipe, but in other classes of goods demand is on a tapering scale. It is possible that the interest in line pipe finds its explanation in the expectation of more favorable prices, now that the manufacturers lack the usual amount of business in other departments. The Gulf Refining Co. is reported in the market for 8-in. and 10-in. pipe for a line to run from Smackover, Ark., to a Gulf port, which would mean a line 400 to 500 miles. Andean National Corporation is seeking 350 to 365 miles for 10-in. for South America; this would mean about 35,000 tons. The Andean National Corporation is affiliated with the International Petroleum Co., and recent report that the latter was in the market for 45,000 tons of line pipe refers to the Andean inquiry. Jobbers still are engaged in liquidating their stocks of merchant pipe and new business is small. Curtailed drilling program in the oil fields, due to the continued decline in crude oil prices, is telling upon new business in oil country pipe. Steel pipe making capacity is not more than 55 per cent engaged in this and nearby districts and most mills are making such prompt deliveries that jobbers are encouraged in a hand-to-mouth buying policy.

Cold-Finished Steel Bars and Shafting.—While orders and specifications have increased somewhat, the gain has not been so great as to encourage the belief that a turn has come. Buyers, particularly of screw stock bars, still are confining purchases and shipping instructions to actual needs. It will probably be well into the fall before the automotive industry again will be busy and for that reason fourth quarter business will probably show up better than that for the present quarter. All makers are quoting 2.90c., base Pittsburgh, and it is claimed that such third quarter contracts as have been written carry that price, but only a moderate tonnage at best is moving at that figure. Carload lot buyers are buying less than carloads at the carload price; hence, the range in the less than carload prices. Ground shafting is priced at 3.30c., base, f.o.b. mill, for lots of a carload or more. Reference to quantity extras in this paragraph last week was an error. The non-observance of extras was in the less than carload differential.

Hot-Rolled Flats.—There is not enough business to give all makers a share and continued irregularity is seen in prices. On bands, it is no longer easy for makers to obtain 2.75c., base, as most strip makers need orders badly enough to take business at 2.60c. As a matter of fact, most mills have made a line of division at 3-in. stock and are quoting that width and narrower ones at 2.75c., base, and wider and heavier material at 2.60c. On the latter, however, there are deviations to as low as 2.50c., base, since it comes into competition with plates and blue annealed sheets. Cotton tie users have already covered for their requirements for the 1924 season and the business from now on is merely one of specifications and shipping instructions. Carrying charge of 1c. per bundle per month does not become effective this year until September. The price is $1.40 per bundle, f.o.b. Atlantic seaboard, instead of f.o.b. Pittsburgh as formerly. Prices are given on page 112.

Cold-Rolled Strips.—Makers in this district still are striving to maintain the market at 4.50c., base Pittsburgh, but are finding the effort difficult, since most of the Middle Western producers are quoting 4.25c., and in some instances are not even stopping at that figure. Local mills are not suffering the loss of customers on account of price and to cover all conditions, the market now appears properly quotable at 4.25c. to 4.50c.

Track Supplies.—Local makers of spikes have generally adopted the list of extras, formulated and put into effect in the East about a month ago. Local extra lists generally are dated July 1. So little new business is coming out that practical application of the new charges has not been possible.

Cut Nails.—Leading makers recently announced a reduction of $2 per ton to $2.90, base, per keg, f.o.b. mill for carload lots and $3 for less than carload lots.

Alloy Steel.—Makers are a little more anxious for business and this has prompted some revisions in prices to lower levels. Prices are given on page 113.

Tin Plate.—The American Sheet & Tin Plate Co. recently booked an order for 40,000 boxes for shipment to Japan and there are some additional inquiries from that country. Domestic business, however, still is extremely slack and suspensions of mill operations over the end of the last week generally are being extended.

Bolts, Nuts and Rivets.—The situation is unchanged as regards both demand and prices. Buyers are extremely conservative in both purchases and specifications and prices generally lean in favor of buyers. Prices and discounts are given on page 112.

Coal and Coke.—Although a long time has elapsed since production of beehive oven coke was as small as it is at present, producers are having considerable trouble finding an outlet for what they are making. Furnace grade is readily obtainable for spot delivery or on monthly contracts at $3 per net ton at ovens. It is claimed that this price is below the cost of production, but competition for business is pretty sharp and it is reported that some of the steel companies, anxious to avoid shutting down their by-product plants, have offered tonnage as low as $2.75, Connellsville base. The situation is somewhat stronger in foundry grades than in furnace coke and lately no really standard 72-hr. fuel has been available for less than $4.25. Low prices for coal are proving no incentive to purchases, because still lower prices prevail in competing districts. Mine run steam coal still is priced at $1.50 to $1.75 per net ton at mines and mine run gas coal $2. Steam slack ranges from $1 to $1.15 and gas slack at $1.25 to $1.30.

Old Material.—Prices show no material change from those of a week ago, but it is doubtful whether the undertone of the market is as strong now as it was then. Steel manufacturers still are out of the market and evidently those dealers who have been buying material for their yards and paying relatively high prices have had some change of heart. It is now seen that purchases at recent prices must be moved at $19 to $20 to net a profit and the continued low rate steel plant operations is rather disconcerting. It was generally believed in view of recent sales in Canton and Massillon, Ohio, of heavy melting steel at $18 and $18.50, the July scrap from the Pennsylvania Railroad would fetch at least $18 for heavy melting grade; actually, it sold at $17.30, or slightly less than in the June offerings of this grade. Specialties sold up to $19, also less than they brought last month. Blast furnace demand for turnings is so limited here that sales of short turnings at more than the price of long ones is impossible. We quote heavy melting steel this week at $17 to $17.50, as none is available at less than the lower price and if a mill wanted supplies, they could not be secured at less than $17.50.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel	$17.00 to	$17.50
No. 1 cast, cupola size	17.50 to	18.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	17.00 to	17.50
Compressed sheet steel	15.50 to	16.00
Bundled sheets, sides and ends	14.00 to	14.50
Railroad knuckles and couplers	19.50 to	20.00
Railroad coil and leaf springs	19.50 to	20.00
Low phosphorus blooms and billet ends	20.50 to	21.00
Low phosphorus plate and other material	20.00 to	20.50
Railroad malleable	15.50 to	16.00
Steel car axles	19.50 to	20.00
Cast iron wheels	16.50 to	17.00
Rolled steel wheels	19.50 to	20.00
Machine shop turnings	13.00 to	13.50
Sheet bar crops	16.50 to	17.00
Heavy steel axle turnings	15.00 to	15.50
Short shoveling turnings	13.00 to	13.50
Heavy breakable cast	15.00 to	15.50
Stove plate	13.50 to	14.00
Cast iron borings	13.50 to	14.00
No. 1 railroad wrought	14.50 to	15.00
No. 2 railroad wrought	17.00 to	17.50

Chicago

Some Signs of Gradual Improvement in Finished Materials

CHICAGO, July 8.—Caution remains the dominant note in the steel market and current commitments, in most cases, continue to represent immediate or nearby needs. Nevertheless signs of gradual betterment are not lacking. For a leading mill, bookings for the past week, in spite of the double holiday, were heavier than for any week since the middle of May. Sales for the month of June fell 1 per cent below those of May, but orders passed to entry totaled 6 per cent larger.

Much encouragement is gained from sustained activity in the construction field. Fabricating awards for the week were light, but much new work has come up for bids. Building permits in Chicago for June were 48 per cent heavier, in terms of cost, than during the same month one year ago. Railroad car buying still lags, but an inquiry has been issued by the Norfolk & Western for 50,000 tons of rails.

Prices remain soft although some mills are showing more resistance to the pressure for concessions. Pig iron prices, which are unchanged, also show some indications of stiffening. Mill and furnace operations are practically identical with those of one week ago, but the last active merchant blast furnace in this immediate district is scheduled to blow out this week.

Pig Iron.—The market is again becoming quiet and it is probable too that most melters have bought about all the iron they require for their present operations, which average three or four days a week. During the past week, sales were made at fresh concessions, one large tonnage having been closed at $19 base, delivered at a local plant, and 700 tons having been purchased by another local foundry at $19 base, furnace. The present tendency, however, is towards a firmer price attitude. A lot of 1000 tons of foundry for fourth quarter delivery at a down-State plant brought $20 base, furnace, and smaller current sales have brought the same figure. Sharp reduction in iron output, no doubt, accounts for the stiffening of the market. With the blowing out of a Federal stack this week, only one merchant furnace, a stack at Mayville, Wis., will remain in blast in this district. Among inquiries which are still in the market may be mentioned 1000 tons of malleable wanted by a Michigan melter for last half delivery, 600 tons of foundry for the same shipment, also for a Michigan user, and 100 tons of foundry for third quarter delivery in Wisconsin. Southern foundry has declined to $18, base Birmingham, with no sales to speak of in this vicinity. Charcoal is unchanged, while silvery has been shaded $1 a ton on small sales.

Quotations on Northern foundry, high phosphorus, malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards or, when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	$29.04
Northern coke, No. 1 sil. 2.25 to 2.75	$20.00 to 20.50
Northern coke, foundry, No. 2, sil. 1.75 to 2.25	19.50 to 20.00
Malleable, not over 2.25 sil	19.50 to 20.00
Basic	19.50 to 20.00
High phosphorus	19.50 to 20.00
Southern No. 2	24.01 to 25.01
Low phos., sil. 1 to 2 per cent, copper free	30.50
Silvery, sil. 8 per cent	35.29
Electric ferrosilicon, 14 to 16 per cent	45.42

Ferroalloys.—Some activity has developed in spiegeleisen with the result that prices have again sagged at least $1 a ton.

We quote 80 per cent ferromanganese, $115.06, delivered; 50 per cent ferrosilicon, $75, delivered; spiegeleisen, 18 to 22 per cent, $41.56 to $42.56, delivered.

Plates.—Although actual mill bookings show little change for the better, business prospects are improving. From 10,000 to 15,000 tons for oil storage tank work is pending and an aqueduct at Denver called for 6000 tons of plates for riveted pipe. Car buying is light, but a local mill has booked 2000 tons of steel against recent orders of equipment. A lighthouse tender and six barges on which the United States Engineers' Office, St. Louis, is taking bids, will involve 1500 tons. Prices are weak and vary considerably, according to the tonnage involved and the desirability of the specifications.

The mill quotation is 2.25c. to 2.35c., Chicago. Jobbers quote 3.20c. for plates out of stock.

Structural Material.—Fabricating awards for the week were small, aggregating barely 1600 tons, but much new tonnage has come into the market. New inquiries total 6300 tons. In addition, The United Masonic Temple, Chicago, 8000 tons, is active, and bids are in on the Union League Club Building, Chicago, 5000 tons, with every prospect of its being placed shortly. Mill bookings of plain material still leave much to be desired, and prices are flexible. Attractive business has been placed at as low as 2.25c., Chicago, but a considerable number of orders are still being booked at 2.35c. A local mill has booked the plain material for eight recent lettings, totaling 3000 tons.

The mill quotation on plain material is 2.25c. to 2.35c., Chicago. Jobbers quote 3.20c. for plain material out of warehouse.

Bars.—Here and there are signs of slight improvement in soft steel bar demand, but in the main buying is cautious and is confined to immediate or nearby needs. Prices lack stability and desirable orders have been taken at as low as 2.20c., Chicago. New business in bar iron remains exceedingly light and prices continue at 2.20c., Chicago, although this figure might be shaded slightly on large lots. Notwithstanding the pressure for still lower prices, the mills declare that they cannot concede another dollar a ton without incurring serious losses. To complicate the situation, scrap prices are rising and intermittent operations, which have been the rule, are conducive to high costs. An East Chicago mill will remain idle until the middle of the month. The situation in rail steel bars shows no betterment.

Mill prices are: Mild steel bars, 2.20c. to 2.25c., common bar iron, 2.20c., Chicago; rail steel, 2.10c., Chicago mill.

Jobbers quote 3.10c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.90c. for rounds and 4.40c. for flats, squares and hexagons, 4.25c. for hoops and 3.75c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.35c. to 2.40c., base; noops, 4.45c.; bands, 3.95c.

Sheets.—Sheets are probably weaker than any of the other leading rolled products. In fact, a number of mills are refusing to meet some of the extreme prices named, preferring to let their competitors fill up on unprofitable business. Signs of gradual recovery of the automobile industry are the chief hope of the sheet producers. Current demand is small.

Mill quotations are 3.50c. to 3.65c. for No. 28 black, 2.75c. to 2.80c. for No. 10 blue annealed, and 4.70c. to 4.80c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote f.o.b. Chicago: 3.90c. for blue annealed; 4.70c. for black, and 5.60c. for galvanized.

Rails and Track Supplies.—Mills are encouraged by the appearance of an inquiry for 50,000 tons of rails from the Norfolk & Western. Delivery beginning in October is asked for. Current bookings in track supplies are individually too small to test prices. Recent orders taken by local mills involve 12,000 kegs of spikes and bolts and 2000 tons of angle bars. If buying should develop in volume, a downward readjustment of prices might ensue.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, 2.10c., f.o.b. makers' mills.

Standard railroad spikes, 3.10c. mill; track bolts with square nuts, 4.10c. mill; steel tie plates, 2.60c., f.o.b. mill; angle bars, 2.75c. f.o.b. mill

Jobbers quote standard spikes out of warehouse at 3.65c. base, and track bolts, 4.65c. base.

Wire Products.—Orders from manufacturing consumers bulked slightly heavier in June than in May, while bookings from jobbers remained practically

stationary. Railroad buying was negligible. Stocks in the hands of jobbers, dealers and manufacturing users are extraordinarily low, so that when fall buying sets in it should be in good volume. The trade expects to feel the beginning of fall trade in two or three weeks. Mill stocks have not yet been appreciably reduced and operations continue to average approximately 35 per cent. Prices are flexible, but on small orders such as are typical of the present market the figures shown on page 112 obtain.

We quote warehouse prices f.o.b. Chicago: No. 6 to No. 9 bright basic wire, $3.40 to $3.75 per 100 lb.; extra for black annealed wire, 15c. per 100 lb.; common wire nails, $3.60 to $3.65 per 100 lb.; cement coated nails, $3 per keg.

Bolts and Nuts.—Sellers continue to hold to a basis of 60 and 20 off, Chicago, on large machine bolts in closing third quarter contracts, but most current business is going at lower prices. Demand shows no betterment.

Jobbers quote structural rivets, 3.65c.; boiler rivets, 3.85c.; machine bolts up to ⅞ x 4 in., 60 per cent off; larger sizes, 60 off; carriage bolts up to ⅞ x 6 in., 55 off; larger sizes, 55 off; hot pressed nuts, squares and hexagons, tapped, $5 off; blank nuts, $4 off; coach or lag screws, gimlet points, square heads, 65 per cent off.

Cast Iron Pipe.—Detroit has formally divided 5350 tons between the United States Cast Iron Pipe & Foundry Co., the American Cast Iron Pipe Co., the Lynchburg Foundry Co. and James B. Clow & Sons. The Lynchburg Foundry Co. will furnish 350 tons for Desplaines, Ill. Flat Rock, Mich., has awarded 350 tons to the National Cast Iron Pipe Co. St. Paul, Minn., takes bids today on 220 tons of 6-in. Toronto, Ohio, will receive tenders July 12 on 192 tons of 4-, 6- and 8-in. Prices remain substantially as quoted below. In exceptional instances as low as $46, base Birmingham, has been done, but nothing lower than that has been named except on large diameters, such as 30-in. and over.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., $58.70 to $59.70; 6-in. and over, $54.70 to $55.70; Class A and gas pipe, $5 extra.

Reinforcing Bars.—Sharp competition is still the rule on reinforcing bar tonnages, but prices do not appear to be any lower than heretofore. Lettings, while not so numerous as a week ago, are nevertheless up to the average of recent weeks. New projects continue to come up for bids, but it is notable that a considerable number of pending jobs of long standing have been indefinitely postponed. Among recent projects which have been deferred is the McCormick Road, involving an ultimate total of about 1000 tons, which had been planned by the Sanitary District of Chicago. Lettings include:

Water purification plant, Racine, Wis., 225 tons to Concrete Engineering Co.

St. Scholastica Academy, Chicago, 200 tons to American System of Reinforcing.

Lake Harriet, Hamilton and Lowell public school buildings, Minneapolis, Minn., 134 tons to C. A. P. Turner Co.

Dairy building for the University of Illinois, Urbana, Ill., 125 tons to Olney J. Dean Co.

Addition to State Hospital, comprising kitchen, dining room and power house, Chicago, 110 tons to Joseph T. Ryerson & Son.

Concordia College building, Milwaukee, 100 tons to American System of Reinforcing.

Pending work includes:

Lumber Exchange building, Chicago, 250 tons.

South Park Commissioners, Twenty-third Street viaduct, Chicago, 400 tons.

Blakeslee storage warehouse, Forty-ninth Avenue and Madison Street, Chicago, tonnage not yet estimated.

Old Material.—A purchase of 10,000 tons of heavy melting steel by a local independent at prices ranging from $14.50 to $15 delivered has given the market further strength. Miscellaneous buying by other consumers has also contributed, while a speculative activity by dealers has no doubt magnified the change in market sentiment. Open-hearth grades, low phosphorus specialties, malleable and iron mill grades have advanced 25c. to $1 a ton. Railroad offerings are light. The Chicago & Eastern Illinois advertises 750 tons and the Soo Line, 500 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton

Iron rails	$16.50 to $17.00
Cast iron car wheels	16.50 to 17.00
Relaying rails, 56 and 60 lb.	26.00 to 27.00
Relaying rails, 65 lb. and heavier	27.00 to 32.00
Forged steel car wheels	17.50 to 18.00
Railroad tires, charging box size	18.00 to 18.50
Railroad leaf springs, cut apart	18.00 to 18.50
Rails for rolling	15.50 to 16.00
Steel rails, less than 3 ft.	16.50 to 17.00
Heavy melting steel	14.50 to 15.00
Frogs, switches and guards cut apart	14.50 to 15.00
Shoveling steel	14.00 to 14.50
Drop forge flashings	10.00 to 10.50
Hydraulic compressed sheets	11.00 to 11.50
Axle turnings	12.00 to 12.50
Steel angle bars	15.50 to 16.00
Steel knuckles and couplers	17.50 to 18.00
Coil springs	19.00 to 19.50
Low phos. punchings	15.00 to 15.50
Machine shop turnings	7.50 to 8.00
Cast borings	10.50 to 11.00
Short shoveling turnings	10.50 to 11.00
Railroad malleable	17.00 to 17.50
Agricultural malleable	16.00 to 16.50

Per Net Ton

Iron angle and splice bars	15.50 to 16.00
Iron arch bars and transoms	16.50 to 17.00
Iron car axles	23.00 to 23.50
Steel car axles	16.50 to 17.00
No. 1 busheling	10.00 to 10.50
No. 2 busheling	8.00 to 8.50
Pipes and flues	9.00 to 9.50
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	13.00 to 13.50
No. 1 machinery cast	16.75 to 17.25
No. 1 railroad cast	15.75 to 16.25
No. 1 agricultural cast	15.75 to 16.25
Locomotive tires, smooth	15.00 to 15.50
Stove plate	13.75 to 14.25
Grate bars	13.75 to 14.25
Brake shoes	13.75 to 14.25

Canadian Scrap Market

TORONTO, ONT., July 8.—Trading in iron and steel scrap in the Canadian market, which has been fairly quiet for some time past, has reverted to a state of almost stagnation as a result of the present holiday season, and the fact that postal workers have been out on strike for the past week or ten days. The difficulty in securing mail has disrupted practically all lines of business, and concerns which generally carry on extensive mail order business have had practically nothing to do since the beginning of the strike. The steel plants at Hamilton, Ont., are taking in shipments of heavy melting steel and turnings on old contract account, but new business is very small. Foundry activities are at a minimum, resulting in a small consumptive demand for machinery cast, stove plate, malleable scrap, etc., and dealers say that the movement of these commodities is almost at a standstill. While dealers are looking forward to a more active demand for scrap, they point out that prospects for the future are anything but bright and consumers are still hesitating where the placing of contracts for scrap for future delivery is concerned. The continued inactivity in the demand for scrap from consumers is reflected in a falling off in trading between dealers, and as a consequence very little buying by dealers was reported for the past week. Dealers' yards are well stocked for all immediate needs and it is stated that there are large tonnages of scrap laying about the country that can be picked up. In the Montreal market practically the same conditions exist as in the Toronto district. Prices are showing more weakness, but no general reductions have been announced, although dealers have made purchases at figures slightly below given quotations. Dealers' buying prices are as follows:

	Toronto	Montreal
Gross Tons		
Steel turnings	$9.00	$8.00
Machine shop turnings	9.00	8.00
Wrought pipe	8.00	9.00
Rails	12.00	13.00
No. 1 wrought scrap	11.00	12.00
Heavy melting steel	11.00	10.50
Steel axles	14.00	17.00
Axles, wrought iron	18.00	20.00
Net Tons		
Standard car wheels	13.00	14.00
Malleable scrap	14.00	14.00
Stove plate	15.00	15.00
No. 1 machinery cast	17.00	19.00

New York

Limited Sales of Pig Iron—Resale Lot Is Held by Speculators

NEW YORK, July 8.—Sales of pig iron last week in this territory did not exceed 10,000 tons and the outlook is that the tonnage this week will be considerably smaller. Very little inquiry is pending. An inquiry for 1000 tons for a foundry at Bridgeport, Conn., for fourth quarter has been withdrawn and it is understood that furnaces were slow to quote for that delivery, as hope is entertained that prices for the last three months of the year will be higher than they are at present. Some of the recent inquiries have been for spot or early delivery, indicating that the foundries had very little iron on hand. A tonnage which amounts to probably 20,000 is being held by speculators at Rochester and is regarded by sellers as a menace to the present situation, as this iron may be sold at sharp price concessions, in fact, it is understood that a price $1 below prevailing prices has already been made. Prices continue on the basis of $20.50 eastern Pennsylvania and $19.00 Buffalo on ordinary business, but it is probable that these prices could be shaded on a good-sized inquiry.

We quote delivered in the New York district as follows, having added to furnace price $2.27 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.44 from Virginia:

East. Pa. No. 1X fdy., sil. 2.75 to 3.25	$23.77 to $24.27
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	23.27 to 23.77
East. Pa. No. 2, sil. 1.75 to 2.25	22.77 to 23.27
Buffalo, sil. 1.75 to 2.25	23.91 to 24.41
No. 2X Virginia, sil. 2.25 to 2.75	31.44
No. 2 Virginia, sil. 1.75 to 2.25	30.44

Ferroalloys.—Sales of 300 to 500 tons of ferromanganese are actually reported and there are rumors that the total may run as high as 1000 tons, unconfirmed reports indicating that two large consumers recently inquiring for 300 to 500 tons each have placed orders. There are no large inquiries now before the market. The business placed is understood to have gone at the regular market price. The spiegeleisen market is inactive, although a few sales of carload lots are noted. There is no particular activity in 50 per cent ferrosilicon nor in the ferrochromium market and so far as ascertainable there have been no changes in quotations in this territory, 50 per cent ferrosilicon still being quoted at $75, delivered.

Cast Iron Pipe.—Business is almost entirely confined to private purchasing and the dearth of municipal buying with public opening of bids, makes it difficult to establish the exact low point of the market. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $60.60 to $61.60; 4-in. and 5-in., $65.60 to $66.60; 3-in., $75.60 to $76.60, with $5 additional for Class A and gas pipe. Soil pipe stocks are evidently so low that jobbers have been forced to come into the market for immediate requirements. The result is a slight increase in demand, but nothing that portends a genuine improvement in business. Sellers contemplate no further increase in discounts at present. We quote discounts of both southern and northern makers, f.o.b. New York, as follows: 6-in., 40 to 40¾ per cent off list; heavy, 50 to 50¾ per cent off list.

Warehouse Business.—The past week has been unusually quiet, probably because of the holiday period. Continuation of the strike of structural steel workers in New York is also having a detrimental effect on sales of structural material. Black and galvanized sheets are firm but sales are extremely light, particularly of black sheets. However, practically no concessions are being made from the minimum schedule of 4.75c. per lb. base for black and 5.75c. per lb. base for galvanized. On the whole, the market on all products is holding up well, despite the extreme dullness of business. We quote prices on page 128.

Finished Iron and Steel.—It was not expected that the past week, including, as it did, a triple holiday, during which time many manufacturing plants were shut down, would bring any change in the steel situation. Consequently little importance is attached to the fact that the volume of orders for steel in this territory during the past week was no better than that of preceding weeks, and in fact was probably not quite so good in some particulars. Activity in structural steel, which has been the leader among all steel products, has been less pronounced, but a good deal of work is in prospect, and the trade looks for a continued gain in the volume of tonnage placed under contract. The largest inquiry of the week comes from the Delaware River Bridge Commission, Philadelphia, which asks for bids by July 16 on 25,000 tons of fabricated steel for the approaches to the Philadelphia-Camden bridge now under construction. Pittsburgh mills are still cutting little figure on plates and shapes in the East in competition with lower prices quoted by Eastern mills. Plates have been quoted on the basis of 1.85c., Pittsburgh, though 1.90c. is the nominal quotation of most mills. Shapes are quoted at 2c., Pittsburgh, but sales have been made at 1.95c. Bars are generally quoted at 2.15c., Pittsburgh, and there has been sharp competition on concrete reinforcing bars. The Standard Oil Co., which is in the market for 85 miles of 6-in. line pipe for export and for 94 miles of 8-in. line pipe for the Southwestern oil field, has not yet placed its orders. The United States Machinery Co., Fall River, Mass., is in the market for 50 to 100 standard I-beams.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.49c. to 2.54c.; plates, 2.19c. to 2.34c.; structural shapes, 2.34c. to 2.44c.; bar iron, 2.44c.

Coke.—Further curtailment in production seems to have stiffened foundry coke slightly, but the market is still weak with distress tonnages offered at low prices. Standard furnace is quotable at $3.50 to $3.75 per ton and standard furnace from $4.25 to $4.75 per ton. By-product is unchanged at $10.41, Newark and Jersey City, N. J.

Old Material.—Although there is still a firm undertone to the market, prices are unchanged, with very few exceptions. No. 1 heavy melting steel is still being purchased by dealers and brokers at $14.50 to $15.50 per ton, delivered eastern Pennsylvania, shipments going forward to Bethlehem, Conshohocken, Pottsville, Pa. and Claymont, Del. Machine shop turnings are firm at $12 to $12.50 per ton, delivered to consumers in eastern Pennsylvania, a large part of the shipments being to Phoenixville, Pa. In some cases buying prices have been advanced 25c. to 50c. per ton on specification pipe, as high as $15.50 per ton delivered being offered. Stove plate is unchanged at $13.75 per ton, delivered to a New Jersey consumer with a $2.02 freight rate. Although the market is unchanged on heavy melting steel, a purchase said to have been made by a large eastern Pennsylvania consumer may have established a slightly advanced price.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	$10.25 to $10.75
Heavy melting steel, railroad or equivalent	11.50 to 12.00
Rails for rolling	14.00 to 14.50
Relaying rails, nominal	24.00 to 25.00
Steel car axles	16.00 to 17.00
Iron car axles	23.00 to 24.00
No. 1 railroad wrought	14.50 to 15.00
Forge fire	8.50 to 9.00
No. 1 yard wrought, long	13.50 to 14.00
Cast borings (clean)	8.75 to 9.25
Machine-shop turnings	8.50 to 9.00
Mixed borings and turnings	7.75 to 8.25
Iron and steel pipe (1 in. diam., not under 2 ft. long)	11.00 to 11.50
Stove plate	10.75 to 11.75
Locomotive grate bars	11.50 to 12.50
Malleable cast (railroad)	14.00 to 14.50
Cast iron car wheels	13.50 to 14.00
No. 1 heavy cast, not cupola size	12.00 to 12.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$15.00 to $15.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	13.00 to 13.50
No. 2 cast (radiators, cast boilers, etc.)	12.00 to 12.50

The Pressed Metal Co., 21 Campbell Street, Pawtucket, R. I., has built and equipped with $250,000 of machinery, mostly presses, a 125 x 300 ft. plant in which Ford parts and other products will be turned out. Interests formerly associated with the Taft Peirce Mfg. Co., Woonsocket, R. I., head the company.

Cincinnati

Buying of Pig Iron Declines—Reports of Price Concessions North and South

CINCINNATI, July 8.—Inquiries and sales have fallen off after a period of fair activity. The smaller buyers are now placing orders for needs for the immediate future and the greater number of sales are for carload to 100-ton lots. Occasionally, however, a round tonnage is sold. A large melter bought 1500 tons of off grade iron from a southern Ohio furnace and a local melter took 1200 tons for third quarter at $19.50, Ironton. A northern Ohio melter is understood to have placed 1500 tons of malleable with a Valley furnace. The Louisville & Nashville Railroad closed for 550 tons of Southern. These were the outstanding sales. A local melter is reported to have purchased 300 tons of foundry at $19, Ironton. The range on iron from this district is now $19 to $19.50. On Southern iron it is reported some offerings have been made at $18. Most of the reported sales are at $18.50, Birmingham, but it would not be surprising if an attractive inquiry would bring out a lower price from one or two producers. Inquiries include one for 4000 tons of foundry from a northern Ohio broker, and one for 1000 to 2000 tons of foundry from Lima Locomotive Works. There is no interest being shown locally in basic or Bessemer grades, and while demand for silveries is not active, it is reported that concessions have been made on business offering.

Based on freight rates of $4.05 from Birmingham and $2.27 from Ironton we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base)	$22.55
Southern coke, sil. 2.25 to 2.75 (No. 2 soft)	23.05
Ohio silvery, 8 per cent (nominal)	32.77
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2)	$21.27 to 21.77
Basic Northern	21.27 to 21.77
Malleable	21.27 to 21.77

Sheets.—There is little apparent change in the situation on sheets, though some sales agencies report inquiries more numerous. Buying is still of the fill-in variety, however, and prices are practically unchanged at 2.75c. for blue annealed, 3.50c. for black, and 4.60c. for galvanized, the latter price being $3 per ton under the "regular" market, though it has been quoted spasmodically for some weeks by some of the smaller mills.

Structural Activity.—The railroads are supplying most of the orders and inquiries, industrial building being at a low ebb. Tank builders report inquiries still fairly active.

Reinforcing Bars.—There have been no awards of prominence, though a number of fair-sized projects have been figured, and awards are expected in the near future. Prices are slightly lower, the range now being from 1.95c. for rail steel bars to 2.15c. for new billet stock.

Warehouse Business.—The customary spurt for the first week of the month was reported by jobbers, who say orders were more numerous than for the similar period in either May or June. Prices are fairly steady and unchanged.

Cincinnati jobbers quote: Iron and steel bars, 3.40c.; reinforcing bars, 3.50c.; hoops, 4.45c.; bands, 4.15c.; shapes, 3.50c.; plates, 3.50c.; cold-rolled rounds, 4.15c.; cold-rolled flats, squares and hexagons, 4.65c.; open-hearth spring steel, 5c. to 6c.; No. 10 blue annealed sheets, 4c.; No. 28 black sheets, 4.70c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, 3.30c.; common wire nails, $3.30 per keg base; cement coated nails, $3 per keg.

Tool Steel.—There is little activity. A number of metal-working shops were closed for the greater part of last week, and as a result orders were in small volume. No changes in prices are reported, the range on 18 per cent tungsten high speed steel being 70c. to 90c. per lb.

Finished Materials.—The past week was little different from the preceding ones, small orders constituting market activity. Some companies profess to see an improvement, however, but with the holiday on Friday, and most of the offices closed on Saturday, aggregate of orders for the week showed a falling off from the previous one. There is little change in the price situation. Bars and shapes can now be had more freely at 2.15c., Pittsburgh, and on plates quotations of 2.10c. have appeared. The demand for wire products is light, with prices showing no change. Specifications from railroad companies for third quarter requirements are fully equal to those of second quarter in the great majority of cases, and business from this source is expected to be maintained throughout the remainder of the year.

Coke.—The L. & N. Railroad is reported to have closed for 500 tons of Wise County coke at $4.35, ovens. A report is also current that a sale of 6000 tons of furnace coke was made, but little information is available. Coke prices generally are unchanged, with demand confined to small tonnages for immediate shipment.

Connellsville furnace, $3.15; foundry, $4.50; New River foundry, $9 to $10; Wise County furnace, $3.75; foundry, $4.50; by-product foundry, $7.50; Connellsville basis.

Old Material.—Though consumer buying is light, dealers continue to buy for yard stocks and prices are holding steadily and in some cases have advanced slightly. Steel companies in the district have offered $16 to $16.50 for heavy melting steel, but have not been successful in getting tonnage, as dealers appear content to wait until the market reaches higher levels.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	$13.00 to $13.50
Scrap rails for melting	12.00 to 12.50
Short rails	17.00 to 17.50
Relaying rails	28.50 to 29.00
Rails for rolling	14.00 to 14.50
Old car wheels	13.00 to 13.50
No. 1 locomotive tires	14.00 to 14.50
Railroad malleable	15.50 to 16.00
Agricultural malleable	14.00 to 14.50
Loose sheet clippings	8.50 to 9.00
Champion bundled sheets	10.50 to 11.00
Per Net Ton	
Cast iron borings	9.50 to 10.00
Machine shop turnings	8.50 to 9.00
No. 1 machinery cast	18.00 to 18.50
No. 1 railroad cast	14.50 to 15.00
Iron axles	21.00 to 21.50
No. 1 railroad wrought	10.50 to 11.00
Pipes and flues	7.50 to 8.00
No. 1 busheling	9.50 to 10.00
Mixed busheling	7.00 to 7.50
Burnt cast	10.50 to 11.00
Stove plate	10.50 to 11.00
Brake shoes	11.50 to 12.00

Buffalo

Fair Business in Pig Iron—Reports of Resales at Rochester

BUFFALO, July 8.—Inquiry for pig iron is up to recent totals, being estimated at close to 15,000 tons. The higher silicon foundry grades predominate in the total, although the largest individual lot, one of 2000 tons, is from the Eastern Malleable Iron Co. One Buffalo seller has indicated no more high silicon tonnage can be placed on his books at present. Sales last week were close to the inquiry. Prices display an exceptionally firm tone, nothing being offered below $19 and sellers making efforts to get full differentials. The only disquieting rumor for sellers as far as price is concerned is that piled iron is being sold from Rochester in New England approximately $1 under the Buffalo market. Buffalo sellers do not regard this as a serious factor at this time. Operation at the Rogers-Brown plant will be cut to a single furnace the last of this week. The Donner Steel Co. will place a stack in blast early in August but may put out the stack now active about the same time.

We quote f.o.b., gross ton, Buffalo, as follows:

No. 1 foundry, sil. 2.75 to 3.25	$19.00 to $20.00
No. 2 foundry, sil. 2.25 to 2.75	19.00 to 19.50
No. 2 plain, sil. 1.75 to 2.25	19.00
Basic	19.00
Malleable	19.00
Lake Superior charcoal	29.28

Finished Material.—An improvement in the demand for structural shapes is noted with the beginning of the third quarter. New business placed with fabricators indicates they will have fairly good rates of operation this quarter. The R. S. McManus Steel Construction Co. has booked a 110-ton order for towers for the

General Electric Co.'s River Road station and 100 tons for a new school at Wurlitzer, N. Y. Bancroft-Jones bookings include more than 100 tons aggregate for several export buildings for the Standard Oil Co. Sheet demand has improved and mill schedules of the early part of the third quarter will be considerably above those of June. Bar demand is slow. Fence makers are meeting their third quarter wire requirements and have placed a good volume of business here. There is little wire inquiry from automobile manufacturers. Plate demand is fair, with larger users out of the market for the present. All prices have been well sustained, sellers say.

Warehouse.—Warehouses have reduced their prices $2 to $5 a ton, but so far the reductions have not brought out much new business. Consumers are buying sparingly and in small lots. The new prices, quoted on city delivery lots, include:

Steel bars, 3.40c.; iron bars, 3.35c.; reinforcing bars, 3.40c.; structural shapes, 3.50c.; plates, 3.50c.; No. 10 blue sheets, 4.05c.; No. 28 black sheets, 4.75c.; No. 28 galvanized sheets, 5.85c.; bands, 4.15c.; hoops, 4.50c.; cold finished rounds, 4.30c.; cold finished shapes, 4.80c.

Scrap.—Outside demand is responsible for increased strength of the old material market. Recent heavy purchases of heavy melting steel by Pennsylvania and West Virginia melters have reduced stocks and dealers are finding it difficult to replace this material at prices within their ideas. Massillon is reported offering $18.50 for steel. Buffalo dealers assert they would have to pay $15 to $15.50 for material to offer on this order.

We quote f.o.b., gross ton, Buffalo, as follows:

Heavy melting steel	$14.50 to $15.00
Low phos., 0.04 and under	17.00 to 18.00
No. 1 railroad wrought	12.50 to 13.00
Car wheels	17.50 to 18.00
Machine shop turnings	11.00 to 11.50
Cast iron borings	12.00 to 12.50
No. 1 busheling	12.00 to 13.00
Stove plate	15.00 to 16.00
Grate bars	14.50 to 15.00
Bundled sheets	8.00 to 9.00
Hydraulic compressed	14.00 to 14.50
Railroad malleable	17.00 to 18.00
No. 1 machinery cast	16.50 to 17.50

St. Louis

Pig Iron Market Very Quiet with Tendency Toward Lower Prices

ST. LOUIS, July 8.—Quietness with a further tendency to lower prices was the outstanding feature in the local pig iron situation during the past several days. Many of the principal users have closed down for the usual midsummer repairs, and plan to remain idle for from two to three weeks. Job plants complain of lack of new business, and no revival in this respect is looked for before the end of July. Stove makers report the smallest volume of advance orders for this particular time of year in more than a decade. In Quincy stove interests have pooled their business, and only two plants have been in operation, the ones which are down sending their patterns to the active plants. Actual sales of pig iron were confined to lots of from single cars to 150 tons, and aggregate under 2000 tons. An inquiry is reported for 1000 tons of low silicon by a western Missouri melter, and prices are asked on 400 tons by an engine builder in the district. The Fulton Iron Works, which recently bought 200 tons of high silicon, is inquiring for 500 tons of the base grade.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $3.28 from Florence and Sheffield (rail and water), $5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$21.16 to $21.56
Northern malleable, sil. 1.75 to 2.25	21.16 to 21.56
Basic	21.16 to 21.56
Southern fdy., sil. 1.75 to 2.25 (rail)	23.17
Southern foundry, sil. 1.75 to 2.25 (rail and water)	21.28
Granite City iron, sil. 1.75 to 2.25	22.81

Finished Iron and Steel.—Holiday quietness prevails in the market for semi-finished and finished materials. Purchasing by the railroads is confined to actual requirements, and during the past two weeks centered principally in track fastenings. Fabricators of building material report a fairly steady stream of small orders, but nothing of any size is before the trade. An Arkansas drilling company placed an order for a round tonnage of tubing for delivery through August, and some other small orders from the oil fields are being received currently. Warehouse stocks are of fair proportions, and warehousemen are not disposed to purchase further ahead than 60 to 90 days. No change in warehouse prices was noted.

For stock out of warehouse we quote: Soft steel bars, 3.35c. per lb.; iron bars, 3.35c.; structural shapes, 3.45c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 4.10c.; No. 28 black sheets, cold-rolled one pass, 5c.; cold rolled rounds, shafting and screw stock, 4.15c.; structural rivets, 3.90c.; boiler rivets, 4.10c.; tank rivets, ⅞-in. and smaller, 60 per cent off list; machine bolts, 55 and 5 per cent; carriage bolts, 40-5 per cent; lag screws, 60 and 5 per cent; hot pressed nuts, squares or hexagons, blank or tapped, $3.50 off list.

Coke.—No change whatever has taken place in the dull conditions prevailing in the coke situation. The demand for beehive coke continues at a low ebb, with light shipments from Connellsville and other Eastern fields. Foundries in the district are being taken good care of by the by-product plants, and their buying is on a hand-to-mouth basis. Stock piles, while not large, are in many instances sufficient to last through the third quarter, particularly should business fail to pick up. Prices were unchanged on all grades and sizes.

Scrap Iron and Steel.—The market for old material continues strong, the firmness being due entirely to speculative activities by the dealers, as aside from one steel maker, purchasing by the industries is temporarily at a standstill. Steel axles were advanced $1 per ton, and several other minor items were raised from 25c. to 75c. per ton. Material for blast furnace use continues firm, and the same is true of cast grades, but all items for rolling mills are dull and neglected. Railroads continue to receive top prices for everything they put out. Lists before the trade include the following: Missouri-Pacific, 3200 tons; Wabash, 1200 tons and Terminal Railway Association of St. Louis, 1300 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$12.00 to $12.50
Rails for rolling	14.50 to 15.00
Steel rails less than 3 ft.	16.00 to 16.50
Relaying rails, 60 lb. and under	25.00 to 26.00
Relaying rails, 70 lb. and over	32.50 to 33.50
Cast iron car wheels	14.50 to 15.00
Heavy melting steel	12.75 to 13.25
Heavy shoveling steel	12.75 to 13.25
Frogs, switches and guards cut apart	13.75 to 14.25
Railroad springs	17.50 to 18.00
Heavy axles and tire turnings	11.00 to 11.50
No. 1 locomotive tires	14.50 to 15.00
Per Net Ton	
Steel angle bars	13.00 to 13.50
Steel car axles	16.50 to 17.00
Iron car axles	21.00 to 21.50
Wrought iron bars and transoms	16.00 to 16.50
No. 1 railroad wrought	10.25 to 10.75
No. 2 railroad wrought	11.50 to 12.00
Cast iron borings	8.50 to 9.00
No. 1 busheling	11.00 to 11.50
No. 1 railroad cast	16.00 to 16.50
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	12.50 to 13.00
Machine shop turnings	5.50 to 6.00
Champion bundled sheets	7.50 to 8.00

Boston

Competition for Low Silicon Iron Business Continues Active

BOSTON, July 8.—Buyers find it increasingly difficult to secure No. 2X and higher silicon iron from regular sources except at full asking prices. As a result there is more splitting up of large tonnages than noted in a long time, with considerable business going to furnaces usually inactive in this territory. Competition for low silicon business continues active, and Buffalo furnaces, heretofore the most active, are losing business to others having an advantage in freight rates. A textile machinery maker has bought Northern No. 1X iron at lower than $23.91 delivered, which figures back to less than $19 furnace, Buffalo. Buffalo No. 2 plain at $19, furnace, is shaded on a delivered basis right along. Eastern Pennsylvania No. 2 plain can be done at $20

and $20.50 furnace, but No. 2X generally is $21.50, and No. 1X $22. The market is growing steadily less active, although a substantial tonnage was sold the past week. A central Massachusetts manufacturer is in the market for 700 tons No. 1X and 300 tons No. 2X, and there is another 1000-ton inquiry in the market, as well as numerous others for lots ranging from 50 tons to several hundred tons. On June 25, 500 tons of India iron arrived at this port.

We quote delivered prices on the basis of the latest reported sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia and $9.60 from Alabama:

East. Penn., sil. 2.25 to 2.75	$25.15 to $25.65
East. Penn., sil. 1.75 to 2.25	23.65 to 25.15
Buffalo, sil. 2.25 to 2.75	23.91 to 24.41
Buffalo, sil. 1.75 to 2.25	23.91
Virginia, sil. 2.25 to 2.75	31.42 to 32.42
Virginia, sil. 1.75 to 2.25	30.92 to 31.92
Alabama, sil. 2.25 to 2.75	30.10 to 31.10
Alabama, sil. 1.75 to 2.25	29.60 to 30.60

Cast Iron Pipe.—The Warren Foundry & Pipe Co. is awarded approximately 1100 tons 30-in. pipe for a new water supply by Worcester, Mass. The firm's bid was $58.50. R. D. Wood & Co. bid $59.75 and the United States Cast Iron Pipe & Foundry Co. $59. Hartford, Conn., this week will award 1000 tons of 6-in. to 36-in. pipe. The pipe market otherwise has grown inactive, with current buying confined mostly to unimportant tonnages. Foundries are maintaining prices on small pipe, but concessions of $1 and $2 have been made on attractive tonnages of large material.

Finished Material.—The demand for mill products in this territory continues on a hand-to-mouth basis because of continued unsettled prices. Bars are generally quoted at 2.15c. per lb., Pittsburgh base, and are the steadiest thing on the list. Shapes are quoted at 2c. to 2.15c., Pittsburgh base, while 1.80c. appears the general asking price on plates. Liberal offers of foreign material at prices below domestic mill quotations account in a large measure for the unsettled condition of the market. French billets are offered on a landed, duty paid, basis equal to the f.o.b. Pittsburgh price. The Boston & Maine Railroad is negotiating for 10,000 tons of rails, presumably Dutch.

Coke.—Both the New England Coal & Coke Co. and the Providence Gas Co. continue to quote by-product foundry coke at $12 delivered in New England. One of the largest consumers in this territory, after holding off the market for several weeks, has contracted for its last half requirements, several thousand tons being involved, on a price ruling date of shipment basis. More than 90 per cent of the New England foundries are now covered for the last half. Current specifications against contract fuel so far this month have been on a par with those for June.

Old Material.—Although far from active, the market for a few kinds of material, notably heavy melting steel, pipe and machine shop turnings, is more so than it was a week ago and prices are firmer. Small tonnages of railroad heavy melting steel are being placed at $11 to $11.75 on cars shipping point for shipment to Pennsylvania, and ordinary material at $10.50 to $11, these prices representing an advance of about 50c. a ton. Pipe is moving at $10.50 to $10.75 shipping point, an advance of 50c. to 75c., while machine shop turnings are about 50c. higher at $7.50 to $8. Recent sales include a small tonnage of car wheels at $17.50 delivered in Connecticut. The market for No. 1 machinery cast is a shade easier, due to the lack of interest among foundries.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast	$19.50 to $20.00
No. 2 machinery cast	16.50 to 17.00
Stove plates	14.50 to 15.00
Railroad malleable	16.50 to 17.00

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$10.50 to $11.75
No. 1 railroad wrought	12.50 to 13.00
No. 1 yard wrought	11.50 to 12.00
Wrought pipe (1-in. in diam., over 2 ft. long)	10.50 to 10.75
Machine shop turnings	7.50 to 8.00
Cast iron borings, chemical	9.00 to 9.50
Cast iron borings, rolling mill	8.00 to 8.50
Blast furnace borings and turnings	6.50 to 7.00
Forged scrap and bundled skeleton	7.00 to 8.00
Shafting	15.00 to 17.00
Street car axles	15.00 to 15.50
Rails for rolling	12.00 to 12.25

Birmingham

Pig Iron Dull with Price Trend Downward—Figuring on Chinese Iron

BIRMINGHAM, ALA., July 8.—While pig iron buying improved slightly, after quotations got down to $18.50 per ton, No. 2 foundry, the total is not up to expectations. Local melters are seeking further concessions. Sellers do not believe that sales have been consummated on an $18 base, and lower, save with freight differentials out of Tennessee and on the Tennessee River, in the northwestern part of Alabama, and laid down into the St. Louis territory. The larger consumers have not been purchasing openly or otherwise. Some of the foundries and machine shops have continued their hand-to-mouth buying of iron and the policy will prevail as long as there is belief that lower prices will be conceded. Another readjustment of wages is possible before a complete shut down is resorted to, intimation being given that the buying has not been heavy enough to prevent addition to the surplus stocks. One of the railroads has asked for an import freight rate from the port of Mobile into the Birmingham district, Chinese iron to be brought in.

We quote per gross ton, f.o.b. Birmingham district furnace as follows:

No. 1 foundry, 2.25 to 2.75 sil.	$18.50 to $19.50
No. 2 foundry, 1.75 to 2.25 sil.	18.00 to 18.50
Basic	18.50 to 19.00
Charcoal, warm blast	31.00

Steel.—Operations of steel plants in the Birmingham district vary but little in the long run. One week this or that department of the big chain of works of the Steel Corporation (Tennessee Coal, Iron & Railroad Co.) will lay off in the readjustment and next week another, while with the Gulf States Steel Co. the open-hearth furnaces lately have varied between two and three out of the six. The average of operations is about the same, the entire steel operations, open-hearth and finishing mills going at about 70 per cent capacity.

Cast Iron Pipe.—The large sized cast iron pipe is in a little better demand than obtained during the past two months, readjustment of prices having brought about some business. The third quarter holds out bright promises for activity at the various cast iron pipe shops and no stock is on hand. No plans have ever been made to pile pipe, efforts being to move the product as quickly as possible. Soil pipe prices $10 per ton lower, down to $50, have induced but little business lately and manufacturers see wisdom in shutting down or curtailing output.

We quote class B, 4-in. water, $51.00 to $52.00; 6-in. and over, $47.00 to $48.00; class A, $5 higher; standard soil pipe, $60; heavy gage, $45; standard fittings, $110.

Coke.—The curtailment in the coke production in Alabama is not very great, though upward of 100 to 150 ovens at by-product coke oven plants have been closed. The demand has eased down a little, including blast furnace demands. The quotations are firm at $5.50, with $5.75 being asked by some of the producers.

Scrap.—The old material market in the South is still lagging, the greater activity in what little is going on being with No. 1 cast and stove plate, but some turnings and borings are being bought. Low prices for pig iron have not had a very encouraging effect. A plentiful supply of scrap iron and steel is to be seen in every direction in this district.

We quote per gross ton f.o.b. Birmingham district yards as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	11.00 to 12.00
Railroad wrought	11.00 to 12.00
Steel axles	17.00 to 18.00
Iron axles	19.00 to 19.50
Steel rails	11.00 to 12.00
No. 1 cast	15.00 to 16.00
Tram car wheels	15.00 to 16.00
Car wheels	15.00 to 15.50
Stove plate	14.00 to 15.00
Machine shop turnings	6.00 to 7.00
Cast iron borings	9.00 to 10.00
Rails for rolling	15.00 to 16.00

Cleveland

Extreme Quiet Continues in Finished Lines—Fair Pig Iron Buying

CLEVELAND, July 8.—While some of the mills report a slight improvement in orders, the sales by others have shown no gain and the market as a whole is about as quiet as at any time during the present inactive period. No new specified inquiries involving round lots of steel came out during the week and consumers that need material are buying in very small quantities. There is more activity in structural material and plates than in steel bars. However, some of the smaller plate mills that up to the present time have been running fairly well on pick up orders report a falling off that will doubtless necessitate a curtailment in operations. While a fair volume of work is pending in structural lines, the placing of considerable building work is being deferred and some of the fabricating shops are in need of orders. The only new inquiries during the week were for several Ohio highway bridges requiring 500 tons of steel. There has been no development in four Lake shipbuilding projects. The Lehigh Valley Railroad has an inquiry for 20 locomotive tenders. Metal working shops in this territory are operating at 50 per cent or less of capacity or not as well as a month ago. Detroit reports that the Ford plant is keeping up its recent schedule of 6000 cars a day. The Dodge plant is still operating at near full capacity and two or three other motor car companies that have been operating at very limited capacity are about to increase production now that they have brought out new models. On steel bars, plates and structural material 2.15c. has become the ruling quotation by the larger mills. However, on plates 2c., that has been quoted recently by one or more of the smaller mills, appears to have become mere common. The market on strip steel is unusually dull and prices are weak. On wide strip 2.50c. is general.

Jobbers quote steel bars, 3.21c.; plates and structural shapes, 3.31c.; No. 28 black sheets, 4.45c.; No. 28 galvanized sheets, 5.55c.; No. 10 blue annealed sheets, 3.55c. to 3.76c.; cold-rolled rounds, 4.10c.; flats, squares and hexagons, 4.60c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 3.96c.; narrower than 1 in. or lighter than No. 20 gage, 4.46c.; No. 9 annealed wire, $3.30 per 100 lb.; No. 9 galvanized wire, $3.75 per 100 lb.; common wire nails, $3.40 base per 100 lb.

Iron Ore.—Owing to the limited demand for ore, many Lake vessels are a month or more ahead on their shipping schedules and the July movement is expected to fall off considerably. Shipments of Lake Superior ore during June amounted to 7,583,926 gross tons as compared with 6,583,815 tons during May. Last year shipments in June were 9,499,501 tons. The movement for the season until July 1 was 14,827,128 tons, a decrease of 1,358,354 tons as compared with the same period last year.

Pig Iron.—The market continued fairly active during the week with no general change in the price situation. The business came largely from western Ohio, Michigan and Indiana, one interest during the week booking 15,000 tons of foundry and malleable iron in these territories. Sales were divided between stove, automobile and jobbing foundries. The same producer still has inquiries aggregating 12,000 tons. Another local interest sold 7000 tons, much of this going to the Pittsburgh district. These sales included 2500 tons to the United States Radiator Co. and 1250 tons to the Iron City Sanitary Mfg. Co. Sales in Cleveland and the surrounding northern Ohio territories were light, but included one 1200-ton lot placed by a local jobbing foundry. Among inquiries pending is one from the General Fire Extinguisher Co. for 1500 tons of foundry iron for its Warren, Ohio, plant. Several recent inquiries have not resulted in orders, as prospective purchasers finally decided that in view of the uncertainty about their own business, they would buy only in small lots as needed. Lake and Valley furnaces appear to be holding firmly to the $19 base price for foundry and malleable iron, but there are reports of the waiving of differentials. In Cleveland, furnaces are no longer asking above $20 for local delivery. Southern foundry iron has settled down to $18, a decline of 50c. and several furnaces in both the Alabama and Tennessee districts are quoting that price. The McKinney Steel Co. plans to blow in within a week its No. 1 River furnace which has been rebuilt. Another of the River furnaces was blown out last month for rebuilding.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6 rate from Birmingham:

Basic, Valley furnace	$19.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	20.00
Southern fdy., sil. 1.75 to 2.25	24.00
Malleable	20.00
Ohio silvery, 8 per cent	33.52
Stand. low phos., Valley furnace	27.00 to 27.50

Semi-Finished Steel.—Recent feelers for sheet bar prices have been followed by several live inquiries for third quarter contracts and developments in the price situation are expected this week. With black sheets commonly quoted at 3.50c. and the claim that even lower quotations have had to be made to secure business, buyers are demanding a sharp cut from the nominal $40 price on sheet bars in order that they may compete with producers that make their own semi-finished steel.

Bolts, Nuts and Rivets.—The demand from railroads for bolts and nuts has fallen off and there is little call from other sources. Consumers are showing no interest in third quarter contracts. Prices are still irregular, some makers shading the usual 60 and 20 per cent discount on machine bolts from 5 to 10 per cent for desirable orders. The current demand for rivets is very light, but makers are getting some third quarter contracts at 2.60c. for large rivets.

Sheets.—Some of the mills report a slight improvement in orders but not sufficient to cause any increase in plant operations. On black sheets 3.50c. is being named by some mills and there are reports that one producer went as low as 3.30c. for a desirable order. However, several mills are still holding to 3.60c. On blue annealed sheets 2.75c. has become the common price and on galvanized sheets 4.75c. is general.

Reinforcing Bars.—Prices on rail steel bars are weak. Quotations above 2c. have disappeared and a 1.90c. price is reported. On billet steel bars, 2.15c. is the common price. Awards during the week include 225 tons for factory buildings for the Columbus Bolt Works, Columbus, Ohio; 230 tons for an exchange building for the Bell Telephone Co. in Canton, Ohio, and 250 tons for a power house for the Cleveland Electric Illuminating Co., all placed with the Bourne-Fuller Co.

Warehouse Business.—Warehouse prices on sheets have been reduced $2 a ton by the leading local jobber. Warehouse business in sheets is fair.

Coke.—The market continues very dull with only hand-to-mouth buying. Prices are unchanged at $4.50 to $6 for standard Connellsville foundry coke. Sales of Wise County foundry coke are reported at $5.25 to $5.50.

Old Material.—With no new demand from the mills, scrap is being offered by dealers in larger quantities than for some time and prices have weakened from 25c. to 50c. a ton on borings and turnings and on busheling. The market has been supported for some time by purchases of scrap by dealers to lay down, but some dealers apparently are not inclined to make additional speculative purchases.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$14.00 to $14.25
Rails for rolling	15.50 to 16.00
Rails under 3 ft.	16.25 to 16.75
Low phosphorus melting	16.50 to 16.75
Cast iron borings	13.00 to 13.50
Machine shop turnings	12.00 to 12.25
Mixed borings and short turnings	13.00 to 13.25
Compressed sheet steel	12.00 to 12.25
Railroad wrought	12.00 to 12.25
Railroad malleable	17.00 to 17.25
Light bundled sheet stampings	11.50 to 12.00
Steel axle turnings	13.00 to 13.50
No. 1 cast	20.00 to 20.50
No. 1 busheling	12.50 to 13.00
Drop forge flashings	10.25 to 10.50
Railroad grate bars	13.50 to 13.75
Stove plate	13.25 to 13.50
Pipes and flues	10.00 to 10.25

Philadelphia

Holiday Dullness Affects Markets—Prices of Plates, Shapes and Bars Weak

PHILADELPHIA, July 8.—When Eastern mills resumed operations Monday after the holiday shutdown of two or three days or longer there were no important accumulations of orders. The fact is that nearly all of the plants of manufacturing consumers were also shut down over the same period, so the Monday and Tuesday mail at local sales offices was unusually light. One plate mill, which had been shut down for more than a week, started Monday with all mills running, but this company had a week's accumulation of business to go on.

If, as some have claimed, the bottom of the steel slump has been reached, it is not reflected in selling prices of plates, shapes and bars, which continue weak, with some further price concessions. Some of the Pittsburgh and Youngstown mills have reduced the price of plates to 2c., Pittsburgh, thereby partially meeting the competition of Eastern mills, which are still $2 or $3 a ton lower. Bars are quoted at 2.15c., Pittsburgh, but are not firm. Shapes are quoted by Eastern mills at 2c., Pittsburgh, and by Pittsburgh mills at 2.15c., but the latter price is of no avail in the East. On desirable lots even 2c. is being shaded by $1 or $2 a ton.

Pig Iron.—Since our report of a week ago there has been little activity in pig iron. Some inquiries are pending, including two or three from New England for fourth quarter, but local sellers are not yet inclined to quote for that period. The Pennsylvania Railroad has not yet bought the 2000 to 4000 tons of foundry iron for which it recently inquired, but it is expected that this business will be placed this week. Eastern furnaces are holding for $20.50, furnace, on No. 2 plain and at $21, furnace, for No. 2X, but it is unquestioned that at least 50c. a ton would be taken off these prices for the larger tonnages. Basic iron is available at $20 to $21, delivered, depending largely on the freight rate, and these prices are in line with the last large transaction, a 15,000-ton sale two or three weeks ago.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$20.76 to $22.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	21.26 to 22.63
East. Pa. No. 1X	21.76 to 23.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	30.17 to 31.17
Virginia No. 2X, 2.25 to 2.75 sil.	30.67 to 31.67
Basic delivered eastern Pa.	20.00 to 21.00
Gray forge	21.00 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	24.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	24.00 to 25.00

Ferroalloys.—The price of ferromanganese has not been seriously tested, current business consisting almost wholly of carload lots, but quotations as low as $100, shipping point, have been reported. Nominally the quotation of both domestic producers and importers continues at $107.50, furnace or seaboard.

Semi-Finished Steel.—In the absence of transactions of importance, there is no change in the prices quoted on billets, rerolling quality being $38, Pittsburgh, and forging quality $5 a ton higher.

Plates.—The Lukens Steel Co., which resumed operations Monday after a shutdown of more than a week, started all of its mills, having accumulated a fair amount of pick-up tonnage. Other mills, however, which were shut down only from Thursday until Monday, did not gain much in orders over the holidays, and the situation this week is not appreciably changed. Competition for orders is not confined to prices, delivery also cutting quite a figure. Most consumers demand immediate rolling and shipment within a week or 10 days. This well illustrates the urgency of current buying. Prices vary somewhat according to the character and size of the specification, but on lots of a carload or more most mills are naming 1.85c. and 1.90c., Pittsburgh. Some Pittsburgh and Youngstown mills are now quoting 2c., Pittsburgh, on plates, but are still $2 or $3 a ton above the Eastern market. The Baldwin Locomotive Works will require about 1000 tons of plates for 30 locomotives to be built for the Seaboard Air Line.

Structural Material.—A fair amount of new work is being figured on, including 25,000 tons of fabricated steel for the Delaware River bridge approaches, bids closing July 16. Other important work to be decided this week and next includes 9300 tons for Philadelphia subways, 4300 tons for the Penn Athletic Club, Philadelphia, 3000 tons for bridges over the Chesapeake Canal, and 2000 tons for the Hotel Dennis, Atlantic City. An apartment house in Philadelphia, for which 2500 tons of steel will be required, is in the market also. Orders for shapes for stock from jobbers and fabricators are showing gains, and in fact there has been more improvement in the demand for structural shapes than for any other rolled products. Prices, however, continue weak. Eastern mills quote 2c., Pittsburgh, but this figure has been shaded $1 or $2 a ton on large lots. A local fabricator has been attempting to obtain even lower prices on 2000 or 3000 tons of material for stock.

Bars.—There has been little or no betterment in the demand for bars from manufacturing consumers and jobbers, but building construction is calling for fair quantities. Soft steel bars are quoted generally at 2.15c., Pittsburgh, but concrete reinforcing bars have been sold at slightly lower figures. Bar iron, which is in light demand, remains at 2.10c., Pittsburgh, most of the Eastern mills naming this price.

Sheets.—Current orders for sheets are said by some sellers to be in slightly greater number, but the change in tonnage is relatively unimportant. Prices have not changed.

Warehouse Business.—Local warehouses continue to do a fair business, some reporting about 50 or 60 per cent of what they consider a normal volume.

Old Material.—The strength which asserted itself in the scrap market some weeks ago is well maintained, but is making little progress owing to the small demands of consumers. Some grades, however, are higher than a week ago. An Eastern steel company has bought a few thousand tons of heavy melting steel at $14.50, delivered, but special circumstances, such, for example, as a low freight rate, undoubtedly surround this transaction, as other mills offering $15.50, delivered, are getting very little material at this price. Dealers and brokers are not willing to sell at less than $16, and it is apparent that if there were any real demand the market would quickly jump to that figure or higher. In "The Comparison of Prices," p. 37 of the July issue of THE IRON AGE, the figure of $15 on heavy steel scrap, Philadelphia, should have read $15.50.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel	$15.50 to $16.00
Scrap rails	15.50 to 16.00
Steel rails for rolling	17.00 to 17.50
No. 1 low phos., heavy 0.04 and under	19.00 to 20.00
Couplers and knuckles	18.50 to 19.00
Cast-iron car wheels	17.00 to 17.50
Rolled steel wheels	18.50 to 19.00
No. 1 railroad wrought	17.50 to 18.50
No. 1 yard wrought	16.00 to 16.50
No. 1 forge fire	13.50 to 14.00
Bundled sheets (for steel works)	12.50 to 13.00
Mixed borings and turnings (for blast furnace use)	11.00 to 11.50
Machine shop turnings (for steel works use)	12.50 to 13.00
Machine shop turnings (for rolling mill use)	12.50 to 13.00
Heavy axle turnings (or equivalent)	14.50 to 15.00
Cast borings (for steel works and rolling mills)	13.50 to 14.00
Cast borings (for chemical plants)	14.00 to 14.50
No. 1 cast	18.00 to 18.50
Heavy breakable cast (for steel plants)	16.00 to 16.50
Railroad grate bars	14.50 to 15.00
Stove plate (for steel plant use)	14.50 to 15.00
Wrought iron and soft steel pipes and tubes (new specifications)	15.50 to 16.00
Shafting	23.00 to 24.00
Steel axles	21.00 to 22.00

Imports.—Last week's imports at this port included 3000 tons of manganese ore from British India, 4500 tons of chrome ore from Portuguese Africa and 115 tons of structural steel from Belgium.

Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

Plates

Sheared, tank quality, base, per lb.....2.15c.

Structural Materials

Beams, channels, etc., base, per lb.....2.15c.
Sheet piling .....2.25c. to 2.30c.

Iron and Steel Bars

Soft steel bars, base, per lb.....2.15c.
Soft steel bars for cold finishing.....$3 per ton over base
Reinforcing steel bars, base.....2.15c.
Refined iron bars, base, per lb.....3c.
Double refined iron bars, base, per lb.....4.75c.
Stay bolt iron bars, base, per lb.....6.50c. to 7.00c.

Hot-Rolled Flats

Hoops, base, per lb.....2.75c.
Bands, base, per lb.....2.60c. to 2.75c
Strips, base, per lb.....2.50c. to 2.75c.

Cold-Finished Steel

Bars and shafting, drawn or rolled, base, per lb.....2.90c.
Bars and shafting, drawn or rolled, l.c.l., per lb.2.90c to 3.15c.
Shafting, turned and polished, base, per lb.....3.00c.
Bars, S. A. E. Series, No. 2100.....4.50c. to 4.75c.
Bars, S. A. E. Series, No. 2300.....6.00c. to 6.25c.
Bars, S. A. E. Series, No. 3100.....5.00c. to 5.25c.
Strips, base, per lb.....4.25c. to 4.50c.

Wire Products

(To jobbers in car lots)

Nails, base, per keg.....$2.90
Galvanized nails, 1 in. and over.....$2.25 over base
Galvanized nails, less than 1 in..... 2.50 over base
Bright plain wire, base, No. 9 gage, per 100 lb.....$2.65
Annealed fence wire, base, per 100 lb..... 2.80
Spring wire, base, per 100 lb..... 3.70
Galvanized wire No. 9, base, per 100 lb..... 3.25
Galvanized barbed, base, per 100 lb..... 3.70
Galvanized staples, base, per keg..... 3.70
Painted barbed wire, base, per 100 lb..... 3.35
Polished staples, base, per keg..... 3.35
Cement coated nails, base, per count keg..... 2.30
Bale ties, carloads to jobbers
75, 5, 5 and 2½ to 75 and 5 per cent off list
Woven fence, carloads (to jobbers).....67½ per cent off list
Woven fence, carloads (to retailers).....65 per cent off list

Bolts and Nuts

Machine bolts, small, rolled threads,
60, 20 and 10 per cent off list
Machine bolts, all sizes, cut threads..60 and 20 per cent off list
Carriage bolts, ⅝ x 6 in.:
Smaller and shorter, rolled threads..60 and 20 per cent off list
Carriage bolts, cut threads, all sizes.60 and 10 per cent off list
Lag bolts .....65 and 10 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads...50 and 10 per cent off list
Other style heads.....20 per cent extra
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.,
50, 10 and 10 per cent off list
Larger and longer sizes.....50, 10 and 10 per cent off list
Hot pressed squares or hex. nuts, blank.....5c. off list
Hot pressed nuts, tapped.....5c. off list
C.p.c. and t. square or hex. nuts, blank.....4.50c.
C.p.c. and t. square or hex nuts, tapped.....4.50c
Semi-finished hex. nuts:
⅞ in. and smaller, U. S. S.....80, 10 and 5 per cent off list
⅞ in. and larger, U. S. S.....75, 10 and 5 per cent off list
Small sizes, S. A. E.....80, 10, 10 and 5 per cent off list
S. A. E., ⅝ in. and larger.....75, 10 and 5 per cent off list
Stove bolts in packages.....80, 10 and 5 per cent off list
Stove bolts in bulk.....80, 10, 5 and 2½ per cent off list
Tire bolts .....60 and 10 per cent off list
Bolt ends with hot pressed nuts.....60 and 5 per cent off list
Bolt ends with cold pressed nuts.....50 and 5 per cent off list
Turnbuckles, with ends, ½ in. and smaller,
55 and 5 per cent off list
Turnbuckles, without ends, ½ in. and smaller,
70 and 10 per cent off list
Washers .....5.75c. to 6.00c.
Lock washers .....80 per cent off list

Semi-Finished Castellated and Slotted Nuts

(To jobbers and consumers in large quantities f.o.b. Pittsburgh.)

	Per 1000 S. A. E.	Per 1000 U. S. S.		Per 1000 S. A. E.	Per 1000 U. S. S.
¼-in.	$4.25	$4.25	⅞-in.	$13.25	$13.50
5/16-in.	4.90	4.90	15/16-in.	16.25	16.50
⅜-in.	5.90	6.25	1-in.	22.50	23.00
7/16-in.	7.50	8.50	1⅛-in.	34.00	34.00
½-in.	9.75	10.00	1¼-in.	53.00	55.00

Larger sizes—Prices on application.

Cap and Set Screws

Milled hex. head cap screws.....75, 10 and 5 per cent off list
Milled standard set screws, case hardened,
75, 10 and 5 per cent off list
Milled headless set screws, cut thread,
75, 10 and 5 per cent off list
Upset hex. head cap screws, U. S. S. thread,
80, 10 and 10 per cent off list
Upset hex. head cap screws, S. A. E. thread,
80, 10 and 10 per cent off list
Milled studs .....65 and 10 per cent off list

Rivets

Large structural and ship rivets, base, per 100 lb..$2.60 to $2.65
Small rivets .....70, 10 and 5 per cent off list

Track Equipment

Spikes, ⅝ in. and larger, base, per 100 lb.....$2.90
Spikes, ½ in. and smaller, base, per 100 lb.....$3.25 to 3.40
Spikes, boat and barge, base, per 100 lb..... 3.25 to 3.40
Track bolts, all sizes, base, per 100 lb..... 3.75 to 4.25
Tie plates, per 100 lb..... 2.50 to 2.55
Angle bars, base, per 100 lb..... 2.75

Welded Pipe

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv
⅛	45	19½	⅛ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	2 to 3	61	50½
¼ to ⅜	47	30½	¼ to ⅜	+19	+54
½	53	42½	½	21	7
¾	58	47½	¾	28	12
1 to 1½	60	49½	1 to 1¼	30	14

Lap Weld, extra strong, plain ends

2	53	42	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts are increased by one point, with supplementary discount of 5 per cent on black and 1½ points, with a supplementary discount of 5 per cent on galvanized.

Boiler Tubes

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Standard Commercial Seamless Boiler Tubes

Cold Drawn			
1 in.	55	3 and 3¼ in.	36
1¼ and 1½ in.	47	3½ and 3¾ in.	37
1¾ in.	31	4 in.	41
2 and 2¼ in.	22	4½ in. and 5 in.	33
2½ and 2¾ in.	32		

Hot Rolled

3 and 3¼ in.	38	4 in.	43
3½ in. and 3¾ in.	39		

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30, base.....87 per cent off list
Carbon 0.30 to 0.40, base.....85 per cent off list
Plus usual differentials and extras for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

	Cents per Ft.		Cents per Ft.
2-in. O.D. 12 gage	15	2¼-in. O.D. 10 gage	20
2-in. O.D. 11 gage	16	3-in. O.D. 7 gage	35
2-in. O.D. 10 gage	17	1½-in. O.D. 9 gage	15
2¼-in. O.D. 12 gage	17	5⅝-in. O.D. 9 gage	55
2¼-in. O.D. 11 gage	18	5½-in. O.D. 9 gage	57

Tin Plate

Standard cokes, per base box.....$5.50

Terne Plate

(Per Package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.00	20-lb. coating I. C.	$14.90
8-lb. coating I. C.	11.80	25-lb. coating I. C.	16.20
12-lb. coating I. C.	12.70	30-lb. coating I. C.	17.35
15-lb. coating I. C.	13.95	35-lb. coating I. C.	18.35
		40-lb. coating I. C.	19.35

Sheets

Blue Annealed

Nos. 9 and 10 (base), per lb.....2.75c. to 2.80c.

Box Annealed, One Pass Cold Rolled

No. 28 (base), per lb.....3.50c. to 3.65c.

Automobile Sheets

Regular auto body sheets, base (22 gage), per lb., 5.10c.

Galvanized

No. 28 (base), per lb.....4.60c. to 4.80c.

Long Ternes

No. 28 gage (base), 8-lb. coating, per lb.....5.30c.

Tin-Mill Black Plate

No. 28 (base), per lb.....3.65c.

Prices of Raw Materials, Semi-Finished and Finished Products

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron	$5.65
Old range non-Bessemer, 51½ per cent iron	4.90
Mesabi Bessemer, 55 per cent iron	5.40
Mesabi non-Bessemer, 51½ per cent iron	4.75

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian	9.75c.
Iron ore, Swedish, average 66 per cent iron	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal	45c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus	42c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, per unit, in 60 per cent concentrates	$8.75 to $10.00
Chrome ore, basic, 48 per cent Cr_2O_3, crude, per ton, c.i.f. Atlantic seaboard	19.00 to 22.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS_2, New York	75c. to 85c.

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton	$107.50
Ferromanganese, British, 80 per cent f.o.b. Atlantic port, duty paid	107.50
Ferrosilicon, 50 per cent, delivered	$72.00 to 72.50
Ferrosilicon, 75 per cent	140.00
Ferrotungsten, per lb. contained metal	90c. to 93c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered	10.75c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr., per lb.	10.50c.
Ferrovanadium, per lb. contained vanadium	$3.50 to $4.00
Ferrocarbontitanium, 15 to 18 per cent, per net ton	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent.....$35.00
Spiegeleisen, domestic, 16 to 19 per cent..... 34.00
Ferrosilicon, Bessemer, 10 per cent, $39.50; 11 per cent, $42, 12 per cent, $43.50; 14 to 16 per cent (electric furnace), $40.00.
Silvery iron, 5 per cent, $27.00; 6 per cent, $28.00; 7 per cent, $29.00; 8 per cent, $30.50; 9 per cent, $32.50; 10 per cent, $34.50; 11 per cent, $37.00; 12 per cent, $39.50.

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines	$19.00 to $22.00	
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines	21.00 to 23.50	
Per 1000 f.o.b. works:		
Fire Clay:	High Duty	Moderate Duty
Pennsylvania	$40.00 to $43.00	$37.00 to $40.00
Maryland	45.00 to 47.00	40.00 to 42.00
Ohio	40.00 to 43.00	37.00 to 39.00
Kentucky	42.00 to 43.00	37.00 to 39.00
Illinois	——	37.00 to 42.00
Missouri	42.00 to 45.00	35.00 to 40.00
Ground fire clay, per net ton		6.00 to 7.00
Silica Brick:		
Pennsylvania		38.00
Chicago		47.00
Birmingham		50.00
Ground silica clay, per net ton		7.50 to 8.00
Magnesite Brick:		
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)		65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)		40.00
Chrome Brick:		
Standard size, per net ton		47.00

Semi-Finished Steel, F.O.B. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over	$38.00
Rolling billets, 2-in. and under	38.00
Forging billets, ordinary carbons	43.00
Sheet bars, Bessemer	40.00
Sheet bars, open-hearth	40.00
Slabs	38.00
Wire rods, common soft, base, No. 5 to ⅜-in.	$48.00
Wire rods, common soft, coarser than ⅜-in.	$2.50 over base
Wire rods, screw stock	$5.00 per ton over base
Wire rods, carbon, 0.20 to 0.40	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75	7.50 per ton over base
Wire rods, carbon over 0.75	10.00 per ton over base
Wire rods, acid	15.00 per ton over base
Skelp, grooved, per lb.	2.15c. to 2.20c.
Skelp, sheared, per lb.	2.15c. to 2.20c.
Skelp, universal, per lb.	2.15c. to 2.20c.

Finished Iron and Steel, F.O.B. Mill

Rails, heavy, per gross ton	$43.00
Rails, light, new steel, base, lb.	1.90c.
Rails, light, rail steel, base, per lb.	1.65c. to 1.75c.
Bars, common iron, base, per lb., Chicago mill	2.20c.
Bars, common iron, Pittsburgh mill	2.40c.
Bars, rail steel reinforcing, base, per lb.	2.10c. to 2.15c.
Rail steel bars, base, per lb., Chicago mill	2.10c.
Cold-finished steel bars, base, Chicago, per lb.	2.90c.
Ground shafting, base, per lb.	3.30c.
Cut nails, base, per keg	$2.90

Alloy Steel

S. A. E. Series Numbers	Bars 100 lb.
2100*(1¼% Nickel, 10 to 20 per cent Carbon)	$3.25 to $3.50
2300 (3½% Nickel)	4.75 to 5.00
2500 (5% Nickel)	6.00 to 6.50
3100 (Nickel Chromium)	3.75 to 4.00
3200 (Nickel Chromium)	5.50 to 5.75
3300 (Nickel Chromium)	8.00
3400 (Nickel Chromium)	6.50 to 7.00
5100 (Chromium Steel)	3.35 to 3.75
5200*(Chromium Steel)	7.50 to 8.00
6100 (Chromium Vanadium bars)	4.50 to 4.75
6100 (Chromium Vanadium spring steel)	4.25 to 4.50
9250 (Silicon Manganese spring steel)	3.50 to 3.75
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	4.25 to 4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.35 to 4.50
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	3.85 to 4.25
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled alloy steel bars, forging quality, per 100 lb., f.o.b. Pittsburgh. Billets 4 x 4 in. and larger are $10 per gross ton less than net ton prices for bars of same analysis. On smaller than 4 x 4-in. billets the net ton bar price applies.

*Not S.A.E. specifications, but numbered by manufacturers to conform to S.A.E. system.

High Speed Twist Drills

F.o.b. factory

Taper shank 1½ in. diameter and smaller...50 per cent off list
Taper shank larger than 1½ in. diameter...45 per cent off list
Wire and jobber sizes.....50 and 10 per cent off list

Freight Rates

All rail freight rates from Pittsburgh on finished iron and steel products, carload lots, 36,000 lb. minimum carload, per 100 lb.:

Philadelphia, domestic	$0.32	Buffalo	$0.265	St. Louis	$0.43	*Pacific Coast	$1.15
Philadelphia, export	0.235	Cleveland	0.215	Kansas City	0.735	*Pac. Coast, ship plates	1.20
Baltimore, domestic	0.31	Cleveland, Youngstown Comb.	0.19	Kansas City (pipe)	0.705	Birmingham	0.53
Baltimore, export	0.225	Detroit	0.29	St. Paul	0.60	Memphis	0.54
New York, domestic	0.34	Cincinnati	0.29	Omaha	0.735	Jacksonville, all rail	0.70
New York, export	0.255	Indianapolis	0.31	Omaha	0.705	Jacksonville, rail and water	0.415
Boston, domestic	0.365	Chicago	0.34	*Denver	1.15	New Orleans	0.67
Boston, export	0.255			†Denver (pipe)	1.17		

*Applies minimum carload 80,000 lb. †Minimum loading 46,000 lb.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 35c.; ship plates, 40c.; ingots and muck bars, structural steel, common wire products, including cut or wire nails, spikes, and wire hoops, 40c.; sheets and tin plates, 40c.; sheets No. 12 gage and lighter, 50c.; rods, 40c.; wire rope cables and strands, 45c.; wire fencing, netting and stretcher, 40c.; pipes not over 12 in. in diameter, 55c.; over 12 in. in diameter, 2½c. per in. or fraction thereof additional. All rates per 100 lb. in carload lots, minimum 36,000 lb.

FABRICATED STEEL BUSINESS

Bookings About 12,500 Tons, But Inquiries Exceed 42,500 Tons

A week shortened by holidays brought out only 12,500 tons of awards, but partly through the 25,000 tons for the Philadelphia-Camden bridge approaches fresh inquiries appeared for a total of 42,500 tons. Of the bookings, one-half was for public service corporations and one-sixth for railroads. The awards include the following:

Theater and office building at Coney Island, New York, 800 tons, to George A. Just Co.

Apartment house, West End Avenue and 104th Street, New York, 1000 tons, to Paterson Bridge Co.

Utica Gas & Electric Co., power plant, Utica, N. Y., 2500 tons, to American Bridge Co.

Dahlstrom Metallic Door Co., Jamestown, N. Y., 200 tons to Kellogg Structural Steel Co.

Peoria & Eastern Railroad, bridge work, 230 tons, McClintic-Marshall Co. low bidder.

Missouri Pacific Railway, repairs to bridge, Little Rock, Ark., 120 tons, to American Bridge Co.

Chapan Building, Chicago, 145 tons, to Morava Construction Co.

Cleveland, Cincinnati, Chicago & St. Louis Railway, bridge, 600 tons, to Wisconsin Bridge & Iron Co.

Commonwealth Steel Co., addition to foundry, Granite City, Ill., 380 tons, to St. Louis district fabricator.

United States Gypsum Co., Oakfield, N. Y., lime plant, 200 tons, to Pittsburgh district fabricator.

Iowa and Harrison Counties, Iowa, bridges, 175 tons each, to Des Moines Steel Co.

Dr. Nichols Hospital, Savannah, Ga., 100 tons, to Des Moines Steel Co.

New York Central Railroad, ore handling bridge for Ashtabula, Ohio, 700 tons, to Brown Hoisting Machinery Co.

New York Central Lines, 400 tons of beams and bridges to Jones & Laughlin Steel Corporation.

Westinghouse Electric & Mfg. Co., East Pittsburgh, building, 300 tons, to American Bridge Co.

Madison Summit Investment Co., Toledo, Ohio, store building, 200 tons, to American Bridge Co.

Columbia Power Co., Cincinnati, power station, 3500 tons; reconstruction of Bethel Temple, Detroit, 200 tons; Cleveland Worm & Gear Co., Cleveland, factory building, 135 tons, all to Fort Pitt Bridge Works.

Reading Co., bridge at Wyomissing, Pa., 355 tons, to Phoenix Bridge Co.

Norristown, Pa., bridge over Schuylkill River, 200 tons; general contract awarded to Baltimore contractor.

Cleveland, Cincinnati, Chicago & St. Louis Railway, bridge at Georgesville, Ohio, 250 tons, to American Bridge Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Delaware River bridge, Philadelphia to Camden, N. J., approaches, 25,000 tons; bids close July 16.

Southern Railway, shops at Spartanburg, S. C., 1200 tons.

Hospital, Syracuse, N. Y., 300 tons.

Long Island Railroad, building, 200 tons.

Norfolk & Western Railroad, two bridges, 400 tons; station building at Bluefield, W. Va., 250 tons.

First National Bank, Altoona, Pa., 300 tons.

Erie Railroad, two bridges, 200 tons.

Harvard bridge over Charles River, Boston (repairs), 1500 tons.

J. G. White Engineering Corporation, New York, steel for several sub-stations and transmission lines on Staten Island for the Staten Island Edison Corporation; also steel for power plant at Livingston, Staten Island.

Union League Club, building, Chicago, 5000 tons, bids in.

Parke, Davis & Co., building, Chicago, 3000 tons.

Warehouse, St. Louis, 300 tons.

Two theater buildings, Chicago, 1400 tons.

United States Engineer's Office, St. Louis, Mississippi River light house tender, 600 tons.

Chicago, Rock Island & Pacific, bridge, Blue Island, Ill., 175 tons.

Louisville & Nashville Railroad, machine and forge shops at Corbin, Ky., 300 tons, bids being taken.

Apartment house, Nineteenth and Walnut Streets, Philadelphia, 2500 tons.

RAILROAD EQUIPMENT BUYING

Export Orders Included in Car Bookings—More Inquiries for Car Repairs

Orders for 674 freight cars (140 for foreign roads), for 30 locomotives and 1100 underframes came to light in the past week, as noted in the items subjoined, and inquiries appeared for repairs to 1000 cars.

On July 1 unfilled orders with the principal builders called for 531 locomotives. Shipments from locomotive plants in the first half of the year totaled 711, against 1405 in the first half of 1923. Locomotives in need of repair on June 1 totaled 10,875, or 16.9 per cent of the number on line. This was a decrease of 991 locomotives compared with the number in need of repair on May 15.

Freight cars in need of repair on June 15 totaled 192,471, or 8.5 per cent of the number on line, according to the car service division of the American Railway Association. This was an increase of 3252 over the number reported on June 1.

The Western Fruit Express has ordered 1000 steel underframes from the American Car & Foundry Co.

Swift & Co., meat packers, Chicago, have bought 100 steel underframes from the Western Steel Car & Foundry Co.

The International Railways of Central America have ordered 90 20-ton box cars from the Gregg Car Co.

The Central Railroad of Brazil has ordered 50 refrigerator cars from the Middletown Car Co.

The Union Refrigerator Transit Co. has ordered 500 refrigerator cars from the American Car & Foundry Co.

The Cambria & Indiana is inquiring for repairs on 200 hopper cars.

The Chesapeake & Ohio is inquiring for repairs on 500 gondola cars.

The Lehigh & New England is in the market for repairs on 300 hopper cars.

The New York Central placed 24 horse cars with its West Albany shops instead of with the Merchants Dispatch Transportation Co. as reported last weeks.

The Delaware Lackawanna & Western has ordered 50 suburban coaches from the Pullman Car & Mfg. Corporation and 10 suburban passenger and baggage cars from the Bethlehem Steel Co.

The Denver & Rio Grande Western has ordered 34 automobile cars from the Standard Tank Car Co.

The Seaboard Air Line has placed an order with the Baldwin Locomotive Works for 30 locomotives of large type.

Five of the subsidiary companies of the Hillman Coal & Coke Co., Pittsburgh, have been merged with the parent organization for the purpose of effecting operating and executive economies. The companies, which for several years have been controlled by the Hillman company, but were maintained as separate entities, are the Diamond Coal & Coke Co., the Merchants Coal Corporation, the Jenner Quemahoning Coal Co., the Pittsburgh & Baltimore Coal Co. and the Naomi Coal Co. The merger made necessary a new charter for the Hillman Coal & Coke Co. The new company is capitalized at $8,752,000.

Hartford County, Conn., manufacturing plants are operating at about 73 per cent of normal. They are employing approximately 54,000 men and women, a reduction of about 5 per cent from the high point of 1924. Many of the plants will shut down this month and in August for ten days to two weeks. Plants dependent upon the automobile industry are feeling the effects of curtailed motor vehicle production. The two Hartford typewriter plants report business holding to the average for this season of the year.

Magnetic separation is to be tried on a large scale in the new concentrating mill at Lyon Mountain, N. Y., for the Chateaugay Ore & Iron Co. Thirty 30 x 30-in. drum type magnetic separators, together with six 30 x 36-in. ventilating type magnetic pulleys will be supplied by the Magnetic Mfg. Co., Milwaukee.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
July	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
2.....	12.62½	12.25	44.62½	7.00	6.65	6.15	5.80
3.....	12.62½	12.25	44.00	7.00	6.65	6.15	5.80
7.....	12.62½	12.12½	44.00	7.00	6.65	6.15	5.80
8.....	12.50	12.00	43.62½	7.00	6.65	6.12½	5.77½

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, July 8.

The holidays, Friday and Saturday, added to the general inactivity, and the markets are without feature. Copper prices are lower. There is no life to the tin market and prices have eased somewhat. Conditions in lead have changed but little, prices being firm. Demand for zinc has not improved and quotations are practically unchanged.

Copper.—There is no improvement in buying. Neither consumers nor operators are interested in the domestic or foreign field. There has been some inquiry and some buying, but they have been insignificant. Prices have eased further and it is possible to buy electrolytic copper as low as 12.25c., delivered, with some producers asking 12.37½c. Sales of small quantities are reported at the lower level. It is the expectation in the trade that the statistics for June, soon to appear, will show little material change as to production and stocks from those for May. Despite the fact that output continues high, there are those who consider the statistical position, as viewed by shipments and stocks, to be favorable and they regard the metal very cheap at present quotations. Lake copper continues largely nominal at 12.50c. to 12.62½c.

Tin.—The market is devoid of feature. One authority characterizes it as desperately dull with sales on a very limited scale. American consumers are practically entirely out of the market, largely because they are taking no orders for finished products. Dealers are uninterested and the only bright spot seems to be the London market. There a better sentiment prevails as to the future and a bull campaign has started. Yesterday about 150 to 200 tons was sold here, spot metal bringing 44c. and futures 44.37½c. The fact that there is a discount on spot shipment is pointed to as indicating that plenty of metal is available. Today the market is exceedingly dull and spot Straits tin is quoted at 43.62½c. London quotations today were about £3 to £5 per ton less than a week ago, with spot standard quoted at £225, future standard at £226 5s. and spot Straits at £226 15s. Arrivals thus far this month have been 1092 tons, with 5230 tons reported afloat.

Lead.—The market is quiet and steady with lead available at 7c., New York, from both the leading interest and independents. Some business has been done by both interests, but the volume is not large.

Zinc.—Conditions have changed but little. The foreign and domestic prices are a little closer and there is more prospect of export shipments. Domestic demand is confined to small lots. Prices have eased only slightly and prime Western is quoted at 5.77½c. to 5.80c., St. Louis, or 6.12½c. to 6.15c., New York.

Nickel.—Quotations for shot and ingot nickel are unchanged at 27c. to 32c. per lb., with electrolytic nickel held at 30c. to 32c. by the leading producers. In the outside market shot and ingot nickel are quoted at 28c. to 32c.

Antimony.—Chinese metal in wholesale lots for spot and July delivery is quoted at 8.25c. to 8.35c., New York, duty paid.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted by importers at 26.50c. to 27c. per lb., duty paid, delivered.

Old Metals.—Business is dull and prices generally unchanged. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible	12.00
Copper, heavy and wire	11.00
Copper, light and bottoms	10.00
Heavy machine composition	9.50
Brass, heavy	7.75
Brass, light	6.25
No. 1 red brass or composition turnings	8.50
No. 1 yellow rod brass turnings	7.25
Lead, heavy	6.50
Lead, tea	5.25
Zinc	4.25
Cast aluminum	16.00
Sheet aluminum	16.50

Chicago

JULY 8.—In an inactive market copper, lead and antimony have declined, while zinc has advanced. Tin sagged for a few days but has since recovered its position of one week ago. Old metal prices are unchanged. We quote in carload lots: Lake copper, 12.87½c.; tin, 45c.; lead, 6.70c.; spelter, 5.85c.; antimony, 10c., in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 9.75c.; copper bottoms, 8.50c.; red brass, 7.75c.; yellow brass, 6.50c.; lead pipe, 5.50c.; zinc, 3.75c.; pewter, No. 1, 21c.; tin foil, 25c.; block tin, 31c.; all buying prices for less than carload lots.

West Virginia Mines Break Away from Union Relationship

PITTSBURGH, July 8.—Mines in the Kanawha, W. Va., coal field which operated under an agreement with the United Mine Workers of America until March 31 last definitely broke away from that relationship with the posting of a new wage scale July 7, which restores the late 1917 scales for tonnage men, but provides slightly higher wages for day labor than did that scale.

Negotiations between mine owners and union representatives have been in progress since the Jacksonville, Fla., settlement, with the union men insisting on the continuance of the 1922 scale. The operators contended they could not pay that scale and compete in the coal market. An agreement was impossible and the operators decided upon starting on an open shop basis.

Reports current that the H. C. Frick Coke Co. on July 21, following a two weeks' suspension of its mines and coke plants, would adopt the reduced wage scale of the independent Connellsville operators find neither confirmation nor credence here. It is believed that ultimately the company will go to the independent scale. But when it does take the step, it is likely to be without advance notice.

Detroit Scrap Market

DETROIT, July 8.—With many plants extending their "close downs" over the holiday to the fifteenth of the month, shipments of melting materials reached a low point for the year. Recent offerings by scrap producers developed dealers' markets with two or three mills bidding. A majority of the melters in the district are covered on their third quarter requirements of pig iron either through extended deliveries or recent purchases.

The following prices are quoted on a gross ton basis f.o.b. cars producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting steel	$13.25 to $14.25
Shoveling steel	13.00 to 14.00
Borings	10.50 to 11.50
Short turnings	10.50 to 11.50
Long turnings	9.50 to 10.25
No. 1 machinery cast	15.00 to 16.00
Automobile cast	21.00 to 23.00
Hydraulic compressed	11.00 to 12.00
Stove plate	13.50 to 14.50
No. 1 busheling	10.00 to 11.00
Sheet clippings	8.00 to 9.00
Flashings	9.50 to 10.50

PERSONAL

Jerome R. George of the Morgan Construction Co., Worcester, Mass., returned recently from a business trip in Europe.

R. D. Bean has been appointed chief engineer for the Brown Instrument Co., Philadelphia.

Will H. Myers, formerly director of vocational training of the R. K. LeBlond Machine Tool Co., Cincinnati, has severed that connection to enter the service of the Ohio Department of Education in the Trade and Industries Division.

Frank C. Anderson of the International Oxygen Co., Newark, N. J., who has been on business in the West, has returned to New York.

Albert R. Steadfast, secretary and general manager Hill, Clark & Co., Inc., Boston, received the felicitations of a large number of machine tool dealers, manufacturers and business associates on July 7, in recognition of his long association with the machine tool business. That date marked the completion of 40 years' continuous service with Hill, Clark & Co. On July 7, 1884, Mr. Steadfast started with the company as office boy, in 1898 he became a salesman, and in 1912 secretary and general manager.

William O. Forman has been made mechanical superintendent of the Boston & Maine Railroad with headquarters at the North Station, Boston, to succeed Charles H. Wiggin, who has been made consulting mechanical engineer.

John H. Dunlap, secretary of the American Society of Civil Engineers, who was severely injured on June 30 in the wreck on the Chicago, Burlington & Quincy Railroad at Buda, Ill., has improved considerably and it is believed that he will escape any permanent disability. Mrs. Dunlap, who went immediately to the Presbyterian Hospital, 1753 West Congress Street, Chicago, to which Mr. Dunlap was taken, said that she felt assured of his complete recovery.

William A. Durgin, who for two and a half years has been at the head of the division of simplified practice in the Department of Commerce, has left this post to resume his former activities with the Commonwealth Edison Co., Chicago, from which he was borrowed by Secretary of Commerce Hoover when the latter established the division to help industry eliminate waste through the reduction of excess varieties. He is being succeeded by Ray M. Hudson, who has been assistant chief of the division since it was created. Mr. Hudson, before coming into the division, was with the Franklin Automobile Co., Syracuse, N. Y., and later with the Holt Mfg. Co., Peoria, Ill. Under Mr. Durgin's direction numerous industries have made a thorough study of their production and sales with the cooperation of the division and the results have been placed before groups of producers, distributors and consumers for action. As a direct result of this cooperation the division assisted some 30 industries to make reductions of excess varieties ranging from 60 to 90 per cent.

E. L. Raysor has become superintendent of the Valley Mould & Iron Corporation, Sharpesville, Pa.

Victor W. Zelen, who lately returned from a trip of several months to Russia as a research and designing engineer in the employ of the Lucey Mfg. Co., New York, has become mechanical engineer for the Titusville Iron Works, Titusville, Pa., and the Buffalo Machine Corporation, New York.

Charles S. Lyon has resigned as chief engineer of the Motor Haulage Co., to become equipment engineer for the General Motors Corporation.

W. A. Cather, formerly in charge of advertising and sales promotion for the Worthington Pump & Machinery Corporation, has been made sales manager of the Barrett Haentjens Co., maker of centrifugal pumps. He will be located at the company's plant in Hazleton, Pa.

Howard Bird, for several years general manager of the Canadian Pneumatic Tool Co., Montreal, subsidiary of the Chicago Pneumatic Tool Co., has been transferred to the London subsidiary of the latter, the Consolidated Pneumatic Tool Co., as managing director and director of European sales of the parent company. He succeeds the late H. D. Megary and will have headquarters in London. D. M. Wesbrook was transferred from district sales manager of the Minneapolis branch to Montreal as general manager of the Canadian subsidiary, succeeding Mr. Bird.

W. M. Corse, chairman of the division of research extension, National Research Council, Washington, will deliver the third autumn lecture before the British Institute of Metals in London, England, Sept. 8, on "Recent Developments in Non-Ferrous Metallurgy in the United States." He will sail on the Republic on July 12.

J. C. Alley of Alley & Page, furnace representatives, 261 Broadway, New York, will sail on the Rotterdam, July 12, for a short trip to Europe, where he will visit Holland, Switzerland, Belgium, France and the United Kingdom. Mr. Alley will be accompanied by his son.

C. A. Collins, who has been vice-president of the Hanna Furnace Co. with headquarters in Buffalo, has been elected president of the company, succeeding L. C. Hanna, Jr., and will shortly make his headquarters in Cleveland. Mr. Collins was formerly vice-president of the Buffalo Union Furnace Co., but became a vice-president of the Hanna Furnace Co. when the Union furnaces were merged with the Hanna organization.

S. E. Church, formerly of the S. E. Church Electric Co., electrical dealer, Chicago, has been appointed Chicago district manager of the Triumph Electric Co., builder of motors, Cincinnati.

E. G. Grace, president Bethlehem Steel Corporation, left last week for England for a vacation sojourn expected to extend into August.

David R. Sieber, previously with the Pittsburgh office of the General Refractories Co., has been appointed district manager of sales.

C. D. Claney, secretary Superior Steel Corporation, Pittsburgh, has been elected treasurer, succeeding Charles H. Foster, who resigned recently to become general manager of sales with the Morris & Bailey Division of the Oliver Iron & Steel Corporation, Pittsburgh. Mr. Claney now is secretary-treasurer. The Superior Steel Corporation has established the position of comptroller, to which Charles A. Lambie has been appointed. He is a graduate of Princeton University, class of 1902.

Roy A. MacDonald, who has been in charge of the Cleveland office, General Refractories Co., since it was opened in 1922, has been elected vice-president of the company and promoted to general manager of sales. For the present he will make his headquarters in Cleveland. He has been associated with the General Refractories Co. since 1911, when he joined the Pittsburgh office. For six years previously he had been with the Harbison-Walker Refractories Co., Pittsburgh, and from 1898 until 1905 was engaged in blast furnace and steel works construction work, first at what is now the Ohio Works, Carnegie Steel Co., Youngstown, then with Julian Kennedy, Pittsburgh, and later with the Republic Iron & Steel Co., Youngstown. He attended Pennsylvania State College, class of 1898.

Eugene A. McKelvy, who has been Pittsburgh district sales manager, General Refractories Co., since 1911, has been elected vice-president of the company and will make his headquarters at the company's general office in Philadelphia. He will devote himself to research and survey work. Mr. McKelvy was associated with the Harbison-Walker Refractories Co., Pittsburgh, from 1905 until 1911, when he joined the General Refractories Co. He attended Pennsylvania State College and Harvard University, and was graduated from the latter in the class of 1902.

C. N. Lauer, general manager of Day & Zimmerman, Inc., has been elected president of the Philadelphia Engineers' Club for the ensuing year. He is a past chairman of the Philadelphia section of the American Society of Mechanical Engineers.

OBITUARY

Frederick Fosdick

Frederick Fosdick, Fitchburg, Mass., president Fitchburg Steam Engine Co., member of the administrative council of the National Metal Trades Association and president of its Worcester branch, died suddenly at his home, July 7. Mr. Fosdick was born in Groton, Mass., in 1850, and established himself in Fitchburg in 1870, becoming a clerk in the office of the Burleigh Rock Drill Co. A year later he went with the Haskins Machine Co. as a draftsman. When the Fitchburg Steam Engine Co. was established he was made secretary-treasurer and later became president of the corporation. He achieved prominence early in his life as a firm advocate of prohibition. But he became best known for his stanch and consistent advocacy of the open shop, and was called upon frequently to deliver addresses on the subject. He became affiliated with the National Metal Trades Association in the Worcester branch in 1907, and always held a prominent and useful place in its councils. Mr. Fosdick frequently was called upon by his fellow citizens to occupy public office. He served three years on the school committee, was for two years president of the common council, and was mayor of Fitchburg in 1886 and 1887. He is survived by his wife, two sons, Judge Frederick W. Fosdick of the Massachusetts Superior Court and Richard C. Fosdick, and an unmarried daughter.

JOHN KANE, superintendent American Laundry Machinery Co., Rochester, N. Y., died at his home in that city on June 27, in his seventy-fifth year. He had been associated with the Laundry Machine company since its establishment and for 35 years had been interested in the manufacture of laundry machines. He was previously a member of the firm of John S. Graham & Co., manufacturers of woodworking machinery.

GEORGE B. LURIE, president Peru Plow & Wheel Co., Peru, Ill., died of an acute heart attack on June 15.

WILLIAM W. SMITH, president John Hassall, Inc., Brooklyn, manufacturer of wire nails, died suddenly on June 24 in Brattleboro, Vt., having been stricken with appendicitis while motoring home from Dartmouth College, where he had attended the graduation exercises. Mr. Smith was born in Philadelphia 58 years ago, but joined the Hassall firm while a youth. He is survived by his wife and three sons, William W. Smith, Jr., who was just graduated from Dartmouth, Theodore B. Smith and Harvey H. Smith.

HENRY W. WATSON, president Watson Mfg. Co., Jamestown, N. Y., manufacturer of metal doors, window screens and bank, office and vault equipment, died at his home in that city on June 29, following an illness of two years. He was born in Minster, County Kent, England, in 1839, and went to New York in 1859. He started the manufacture of carriages in Jamestown and in 1889 organized the Watson Mfg. Co.

H. A. IRWIN, Far East representative of the Landis Machine Co., Landis Tool Co., Warner & Swasey Co. and Kearney & Trecker Co. since 1920, died in Tokio, Japan, on June 22. He was direct representative of the Landis Tool Co. in Europe for many years, and had traveled extensively through France, Italy, Germany, Belgium and England. He is survived by his wife, who is in Japan, his parents and several brothers and sisters who reside at McConnelsburg, Pa.

BENJAMIN G. LAMME, chief engineer Westinghouse Electric & Mfg. Co., died at his home in Pittsburgh, July 8. As an associate of George Westinghouse he made many valuable contributions to electrical science and had achieved wide renown in the electrical engineering profession. He was born near Springfield, Ohio, Jan. 12, 1864, and was graduated from Ohio State University, class of 1888, with the degree of mechanical engineer. He became associated with the Westinghouse company in 1889.

Richard F. Grant Elected President of Chamber of Commerce of United States

WASHINGTON, July 8.—Richard F. Grant, of Cleveland, vice-president of M. A. Hanna Co., and formerly president of the Cleveland Chamber of Commerce, was elected president of the Chamber of Commerce of the United States last week at a meeting of the board of directors, succeeding Julius H. Barnes, of Duluth.

RICHARD F. GRANT

At its meeting the board also elected Owen D. Young, chairman of the board of the General Electric Co., as director to take the place of Lewis E. Pierson, chairman of the board of the Irving Bank-Columbia Trust Co., of New York, who was recently elected vice-president for the Eastern district of the national chamber.

Mr. Grant was born at Owatonna, Minn., in 1870. He obtained his Ph.D. degree at Yale in 1899 and was graduated with a bachelor of law degree from the New York Law School in 1901. He took up the practice of law in Duluth in 1901, as a member of the firm of Sullivan & Grant. In 1909, he became general counsel of M. A. Hanna & Co., a partner in the firm in 1917, and in 1923, when its interests were taken over by the M. A. Hanna Co., he became vice-president. He is also president of the Susquehanna Collieries Co., vice-president of the Hanna Furnace Co., president of the Virginia Ore Mining Co., and a director in the Cleveland Trust Co.

Mr. Grant was appointed by President Wilson a member of the National War Finance Committee of the American Red Cross and served as chairman of the membership and finance drives for Ohio, Indiana and Kentucky in 1917. He is a member of the American Iron and Steel Institute.

"The Chamber of Commerce of the United States," said Mr. Grant, addressing the board of directors upon his acceptance of the office, "owes much to Julius H. Barnes for his clear definition of the principles and the purposes of American business and the upholding of the ideals upon which they are based. These are a part of the permanent policy of the chamber and it can do no better work than to see to it that they are applied to the problems of industrial life and observed in the conduct of all business. High standards have been set. The moral purpose of business has been clearly defined in a code of business ethics. These it should be the function of the chamber to carry out."

To aid in preventing failure of pyrometers because of improper installation and maintenance, is the purpose of a 72-page book under the title of "Instruction for Installation and Care of Thermo-Electric Pyrometers," recently compiled by the Brown Instrument Co., Wayne and Windrim Avenues, Philadelphia. One part of the publication sets forth the theory of thermo-electric pyrometry, another part taking up the proper installing of pyrometers. Several pages are devoted to the checking of pyrometer installations and tables of temperature; millivolt equivalents for thermocouples and conversion of Fahrenheit to Centigrade scales are among the useful data included. The book is concisely written and is adequately illustrated.

The American Rolling Mill Co. will rebuild its West blast furnace at South Columbus, Ohio. The furnace will be dismantled and a new mantel ring, furnace shell and downcomers will be erected. The top equipment and the McKee revolving distributor on the present furnace will be used on the new stack. Arthur G. McKee & Co., engineer and contractor, Cleveland, has been awarded the contract for the reconstruction work.

STEEL AND INDUSTRIAL STOCKS

The range of prices on active steel and industrial stocks from Monday of last week to Monday of this week was as follows:

	Low	High		Low	High
Allis-Chalmers ..	49½	51½	Int. Har.	87	88½
Allis-Chal. pf....	95½	95½	Int. Har. pf.....	108⅝	108¾
Am. Can	110½	116¼	Jones & Lau. pf.	110¾	110¾
Am. Can pf.....	114⅞	115	Lima Loco.	59	62
Am. Car & Fdy..	162½	166	Midvale Steel ...	22	27
Am. C. & F. pf..	123¾	124	Nat.-Acme	6¼	6¼
Am. Locomotive.	74¼	75¼	Nat. En. & Stm..	21⅝	23½
Am. Loco. pf....	119½	119½	N. Y. Air Brake	43¼	44⅛
Am. Radiator ..	104	108⅝	Otis Steel	8	8¼
Am. Steel Fdries.	35½	36¼	Otis Steel pf....	51	53
Am. Stl. Fd. pf..	103	103	Pressed Stl. Car.	49½	51¾
Bald. Loco.	113¼	116¼	Pressed Stl. pf..	82	82
Bald. Loco. pf..	115⅝	115⅝	Replogle Steel ..	10½	12¼
Beth. Steel	45⅜	47¼	Republic	46½	47⅛
Beth. Stl. 7% pf.	89½	90⅜	Sloss-Sheffield ..	58½	59⅜
Beth. Stl. 8% pf.	103⅛	103⅜	Sloss-Sheffield pf.	80¼	80¼
Br. Em. Stl. 2 pf.	8¾	8¾	Steel of Canada.	71	71
Chic. Pneu. Tool	86	86	Un. Alloy Steel..	22⅛	22¼
Colo. Fuel	45⅛	49⅛	U. S. Pipe.....	94⅝	98½
Crucible Steel ..	53	55½	U. S. Pipe pf....	93	93
Crucible Stl. pf..	88⅝	88⅝	U. S. Steel.....	98¾	100⅞
Deere pf.	62	63	U. S. Steel pf...	121⅛	122
Gen. Electric ...	235	238¾	Vanadium Steel.	22⅝	23⅝
Gt. No. Ore Cert.	27¼	27¾	Va. I., C. & Coke	36¼	36¼
Gulf States Steel	69⅛	71½	W'house Air Br.	92¾	93⅛
Inland St.	34	34			

Industrial Finances

The American Bolt Corporation and the Hoopes & Townsend Steel Co. jointly have sold $750,000 7½ per cent debenture bonds, dated June 1 and maturing in 1934, to bankers, who are offering the issue at 100 and accrued interest. Net earnings of the constituent companies of the American Bolt Corporation from 1917 to 1923, inclusive, averaged more than $296,000, after deducting a loss of $295,000 in 1921, and maintenance and repair charges of $576,000. Earnings of the companies controlled by the Hoopes & Townsend company from 1916 to 1920, inclusive, available for interest, Federal taxes, depreciation and dividends averaged $222,190 per year, notwithstanding a loss of $105,000 in 1921 and 1922.

By a court ruling the $100,000 mortgage held by the Central Trust Co. of Illinois on the bankrupt Eastern Brass & Ingot Co., Waterbury, Conn., is valid. The plant sold at auction recently for $58,000 and the court orders the trustee to turn over to the bank the proceeds of the plant's real estate, amounting to $52,500.

The Lorain Steel Co., subsidiary of the United States Steel Corporation, has filed with the Massachusetts commissioner of corporations a statement, dated Dec. 31, which shows total assets and liabilities of $14,120,726. At the close of 1922 they were $14,155,827. Surplus at the end of 1923 stood at $5,988,132, against $6,024,390 at the close of 1922. During the last year the company allowed $1,842,961 for depreciation and depleted reserves, $113,977 more than in 1922. The company's cash position was a little stronger, being $617,497, as against $502,105 on Dec. 31, 1922.

Martin A. Adams, Galva, Ill., has been appointed receiver for the Wistrand Mfg. Co., that city, manufacturer of corn planters, pumps and other farm equipment.

The Manufacturers National Bank of Racine, Wis., has secured judgment in the sum of $49,086 against the Higgins Spring & Axle Co., Thomas A. Fagan, trustee, and the Illinois Steel Co., under a foreclosure of a mortgage dated Aug. 28, 1922, for a loan of $45,000 for one year. Neither interest nor any part of the principal has been paid, it is asserted. The Higgins plant at Sixteenth Street and the Northwestern tracks, Racine Junction, has been idle for several months.

The Green Bay Dry Dock Co., Green Bay, Wis., has filed a voluntary petition in bankruptcy, listing liabilities at $169,421 and assets at $66,191.

Cannot Collect Donner-Hanna Taxes

The City Council, Buffalo, has been informed through its corporation counsel that there is no way of collecting taxes on the property of the Donner-Hanna Coke Corporation plant in that city, which the Government sold to that firm following the war on a ten-year payment plan. As the deed is still held by the Federal Government, it can be held taxable only under an act of the legislature.

No such law exists and the Buffalo law makers failed to obtain the passage of the Hickey and Lacey bills for this purpose in the last session of the legislature. The city loses about $100,000 a year in taxes on this property and the courts have time and again ruled it untaxable.

Had the instigators succeeded in securing the passage of the Hickey and Lacey bills, the way would have been paved for the city to tax also the plant of the American Radiator Co., which was also purchased from the War Department on the installment plan.

Trade Changes

The Dearborn Chemical Co. has moved its general offices in Chicago to 310 South Michigan Avenue.

The United Alloy Steel Corporation, Canton, Ohio, announces the change in address of the Cleveland office to 2004 Union Trust Building, 925 Euclid Avenue.

The F. W. Reidenbach Co., Rochester, N. Y., after July 1, will assume all obligations of the Genesee Purchase & Sales Co., which for three years has traded under the above title. The company will specialize in metals, iron, steel, etc.

The Dreis & Krump Mfg. Co., Chicago, has moved into its new plant at 7430 Loomis Street.

The Elsee Products Corporation, 280 Broadway, New York, has been appointed sales representative for the Standard Fuel Engineering Co., Detroit, manufacturer of industrial furnaces. The Elsee company will cover the New York territory and take charge of export trade.

An agreement has been entered into between the Indiana Pump Co., Indianapolis, manufacturer of air-lift water pumping equipment, and the Chicago Pneumatic Tool Co., New York, builder of air compressors, whereby each organization will use jointly and exclusively the products of each other on air-lift installations.

H. A. Brassert, Inc., consulting engineer, has moved offices from 122 South Michigan Avenue to 310 South Michigan Avenue, Chicago.

The Penn Metal Co., Franklin Street, Boston, has moved to new offices located at its plant at 675 Concord Avenue, Cambridge, Mass.

The American Radiator Co. has purchased the two-story plant, 100 x 260 ft., of the Larkin-Carey Co., New Haven, Conn. It has operated the plant in recent years under a lease. The price paid was approximately $150,000. The property includes a 300-ft. wharf on Quinnipiac River. It will continue to be distribution headquarters of the company for the New England territory.

C. Davis & Co., manufacturers of pipe, Pittsburgh, have moved their offices to the Union Trust Building.

J. V. S. Bishop has retired from the firm of Bishop, Friedman & Bergstrom, scrap dealers, Philadelphia, and this firm will discontinue its Philadelphia office, conducting its business from its office at Coatesville, Pa. Mr. Bishop in association with John R. Disch and Harry R. Bishop will continue in the scrap brokerage business in Philadelphia as a copartnership under the name of Bishop & Co.

The Standard Rail & Steel Co. has moved its general offices from the Planters Building, St. Louis, to Madison, Ill., where their plant is located.

The Gibb Instrument Co., Bay City, Mich., manufacturer of electric arc, spot, seam and automatic welding machines, announces that the Chicago office is in charge of W. F. Hebard & Co., 551 West Van Buren Street. Thomas Barnes, an officer of the Hebard company and an electrical engineer of wide experience, will head the welding department. He will be assisted by Charles Watson, who has been in service with the Gibb Instrument Co., both in Japan and the United States, and who has been associated with the Chicago office for the last two years. Mr. Hurd, the retiring representative, has represented the Gibb company for the last five years. He will look after the interests of the company in New England after Aug. 1.

The Louis Allis Co., Milwaukee, manufacturer of direct and alternating current motors, has established a New York office with George Sherrerd, Jr., 345 Madison Avenue, as manager.

The Jones & Laughlin Steel Corporation, Pittsburgh, soon will open a branch office in Los Angeles, Calif., the company having maintained branch selling offices in Seattle and San Francisco for several years. Its trade in pipe on the coast has been steadily growing, and in order to meet increased demand, the company will place a man from the pipe department of the general offices at Pittsburgh in charge of the Los Angeles office.

The Persons-Arter Machine Co., 72 Commercial Street, Worcester, Mass., maker of surface grinders and magnetic chucks, hereafter will be known as the Arter Grinding Co. Charles A. Persons has not been associated with the firm for several years and for this reason the change was made. There is no change of personnel.

The Affa Specialty Co., 3 Southbridge Street, Worcester, Mass., has changed its name to the Graffam Metal Products.

The Boston office of Rogers, Brown & Co. is now located in the new Chamber of Commerce Building, 80 Federal Street, corner of Franklin, suite 905, 906, 907.

Machinery Markets and News of the Works

HOLIDAY LULL

Dullness of Recent Weeks Intensified by Fourth of July Shutdown

Some Machine-Tool Plants Will Remain Closed Until Business Shows Improvement

NEARLY all of the machine-tool plants of the country were shut down over the Fourth of July triple holiday; some were closed for a week, and not a few will remain inactive until there are definite signs of improvement in business.

The markets throughout the country have been unusually dull during the past week, the holiday spirit intensifying the quiet conditions which have prevailed during the past few months.

Chicago reports a few indications of better business, but the more important buying has come from the railroads, industrial companies apparently not needing equipment in view of the fact that their present equipment is not fully employed.

Considerable railroad business still is pending and the trade hopes that some of this will develop this month. Among the roads from which orders are expected are the Norfolk & Western, Southern, Santa Fe, Burlington and Louisville & Nashville.

It is reported in Cincinnati that a large machine-tool manufacturer there has received a substantial order for machine-tool equipment from the Mexican Government, but this lacks confirmation.

New York

NEW YORK, July 8.

WITH a triple holiday at the end of the last week, many manufacturing plants were shut down for several days or longer, and the effect of this was to make machine-tool business even quieter than it had been in preceding weeks. There have been scattered orders for single tools, but the aggregate of buying has been small. The Atchison, Topeka & Santa Fe Railroad bought a 2-spindle frame drill from an Eastern company and the Southern Railway bought a 2500-lb. steam hammer. The General Electric Co. ordered an engine lathe, 113 in. x 45 ft., and a horizontal floor boring machine. The American Railroad Co. of Porto Rico bought a 42-in. x 16-ft. engine lathe.

The International Motor Co., 25 Broadway, New York, with main plant at Plainfield, N. J., is having plans drawn for a new factory branch and service works at Moore and Honeywell Avenues, Long Island City, estimated to cost $600,000 with equipment. E. E. Seelye and J. H. Musselman, both at 101 Park Avenue, New York, are structural and mechanical engineers, respectively.

The Staten Island Edison Corporation, St. George Terminal, Tompkinsville, S. I., is disposing of a bond issue of $1,600,000, a portion of the proceeds to be used for extensions in power plant and the installation of a 15,000 kw. generating unit and auxiliary equipment. J. H. Pardee is president.

Anthony Lombardi, 1221 Sheridan Avenue, New York, architect, is completing plans for a two-story automobile service, repair and garage building, 100 x 275 ft., estimated to cost $100,000.

The Braubach Piano Co., 639 West Forty-ninth Street, New York, has purchased property, 150 x 200 ft., on West Fifty-first Street, near Eleventh Avenue, as a site for a seven-story factory, for which plans will be drawn by Russell G. Cory, 30 Church Street, architect and engineer. It is estimated to cost $700,000 with machinery.

John Sloane, 100 East Forty-second Street, New York, architect, will soon take bids for a two-story automobile service, repair and garage building, 100 x 100 ft., to cost $125,000 with equipment.

James E. Miller, United States Trade Commissioner, Room 29, Grosvenor House, 21 Old Court House Street, Calcutta, India, has received an inquiry from the Indian Stores Department and other interests, for conveying, elevating and kindred machinery, and solicits catalogs in triplicate from American manufacturers, addressed as noted above.

The Quality Laundry Service, Inc., 251 Third Avenue, New York, has awarded a general contract to John H. Deeves & Brother, 103 Park Avenue, for a one-story steam power plant and mechanical laundry to cost $500,000 with equipment. Thomas Murray, 55 Duane Street, is architect. J. A. Chipperfield is president.

The General Electric Co., Schenectady, N. Y., is continuing its establishment of service shop and repair divisions at its various branch factories with the latest shop to be located at Kansas City, Mo. Arrangements have been made for similar machine departments at Lynn, Mass., Oakland, Cal., Fort Wayne, Ind., Erie, Pa., as well as at the main Schenectady works.

In connection with the proposed acquisition of the Riordan Co., Montreal, by the International Paper Co., 100 East Forty-second Street, New York, for which negotiations are said to be in progress, the purchasing company plans the development of hydroelectric power properties held by the Riordan interests, with aggregate plant equipment for 160,000 hp., and for the construction of a new mill for newsprint production in the Gatineau timber district.

Power equipment, ovens, conveying and other machinery will be installed in the five-story addition to be constructed to the baking plant of the Drake Brothers Co., Clinton and Park Avenues, Brooklyn, 60 x 85 ft., estimated to cost $85,000, including improvements in present plant. Dodge & Morrison, 160 Pearl Street, New York, are architects.

A metal furniture manufacturing company, represented by George Price, 391 East 149th Street, New York, real estate, has acquired property on Willow Avenue, 133d to 134th Street, totaling 50,000 sq. ft., as a site for a new six-story plant to cost $150,000, for which plans will soon be prepared.

The American Consulate, Soerabaya, Java, is interested in receiving catalogs from American manufacturers of sugar machinery for transmission to Government officials in this district, desirous of securing information for plant installations. The literature should be addressed, "The American Consul, Soerabaya, Java."

The Brooklyn Edison Co., 330 Pearl Street, Brooklyn, has taken out a permit for a one-story power substation, 100 x 103 ft., at 304-12 Pearl Street, estimated to cost $43,000.

The Industrial Machinery Division, Room 815, Bureau of Foreign and Domestic Commerce, Washington, has received a request from its branch at Sao Paulo, Brazil, for catalogs and information regarding American metal-stamping machinery for the manufacture of toys, particularly toy disk and spoke wheels, for which local inquiries have been received. Literature should be addressed to the Industrial Machinery Division, marked, "For transmission to the Office of Trade Commissioner, Sao Paulo, Brazil, Reference No. 5-22."

Gilfillan Brothers, Inc., Los Angeles, has acquired the Radio Service Laboratories, Asbury Park, N. J., and will consolidate with its organization. The purchasing company will expand its facilities for the manufacture of radio equipment and magneto parts, and will operate plants at Los Angeles, Kansas City, Mo., and Asbury Park.

The Holland Co., a subsidiary of the Public Service Corporation, Public Service Terminal, Newark, N. J., has acquired property at Irvington, adjoining the former motor truck plant of the Day-Elder Motor Corporation, lately purchased. The company is using the last noted property for motor bus construction and repair work, body manufacture, etc., and will expand the plant with the new acquisition.

The Chester Township Committee, Maple Shade, N. J., will take bids until July 15 for a municipal pumping plant, consisting of an electric-operated pump with capacity of 400 gal. per min., and auxiliary equipment. Plans and specifications at the office of Samuel Willis, township clerk, or office of Remington & Vosbury, 509 Cooper Street, Camden, N. J.

M. D. Goodman, 185 Bigelow Street, Newark, N. J., is inquiring for lifting magnets, electric arc welders and electric hoists.

Philadelphia

PHILADELPHIA, July 7.

PLANS are being prepared by the Sun Oil Co., Finance Building, Philadelphia, for a new storage and distributing plant at Long Island City, N. Y., estimated to cost $200,000 with equipment. An automobile service and repair building will also be built. J. H. Pew is president.

The Philadelphia Rapid Transit Co., Eighth and Dauphin Streets, Philadelphia, has awarded a general contract to the Baton Construction Co., 1713 Sansom Street, for seven new one-story shop and inspection buildings, in connection with office building, at Twentieth and Johnson Streets, to cost approximately $490,000. The main shop will be 110 x 350 ft., with extension 20 x 42 ft.

C. M. Roswell, 1162 Marlyn Road, Philadelphia, machinery dealer, has inquiries out for one or two rotary converters, each 150 kw., 250 volts, d.c., with transformers and accessory equipment; also for one belt-driven generator, about 1500 amp.

The Board of Trustees, Girard College, Philadelphia, has awarded a general contract to E. H. Keefer & Son, 1321 Rodman Street, for a two-story addition to the mechanical school, 140 x 155 ft., estimated to cost $375,000 exclusive of equipment. The installation will include steam and electric power machinery, tools, etc. John T. Windrim, Commonwealth Building, is architect.

The Berrodin Automobile Supply Co., 713 North Broad Street, Philadelphia, has awarded a general contract to the Turner Construction Co., Huntingdon and Thompson Streets, for its proposed three-story plant, 58 x 130 ft., for the manufacture of automotive equipment, estimated to cost $145,000 with equipment. Philip S. Tyre, 1509 Arch Street, is architect.

The Foreign Trade Bureau, Philadelphia Commercial Museum, has received an inquiry (42451) from the Crescent Electric Trading Co., Carnac Road, Bombay, India, desirous of getting in touch with American manufacturers of electric engines and motors, metal furniture, hardware, machinery for the manufacture of bolts and nuts, drilling machinery, metal-working machinery, pipe cutting and threading machinery, well-drilling equipment, ice-making and refrigerating machinery, woodworking machinery, foundry equipment, sugar machinery, grinding mills, machinists' tools, blacksmiths' tools, carpenters' tools, cabinet-makers' tools and tinsmiths' tools; also an inquiry (42443) from Carl J. Schmidt, Moorweidenstrasse 34, Hamburg, Germany, desiring to get in contact with American manufacturers of plows without wheels, with rolls; beet tack-harrows; plows with two disks; disks; gang plows; reaping machines with binder, French type; and reapers.

Boyer & Crawford, J and Venango Streets, Philadelphia, have awarded a general contract to the William Steele & Sons Co., 219 North Broad Street, for the erection of a one-story steam power house.

The Interstate Body Corporation, Newark, N. J., recently formed with a capital of $100,000, has leased a two-story building at Trenton, N. J., and will take early possession, installing equipment for assembling and other work. W. H. Henderson and John D. Lyman, 734 Ferry Street, Newark, are heads.

The Duncan Mackenzie's Sons Co., Inc., Trenton, recently incorporated with a capital of $50,000 and registered office at 40 West State Street, care of Homan & Buchanan, attorneys, will succeed to the foundry and machine shop business of the company of the same name operating for a number of years at Hamilton and Clark Streets. The company will continue the manufacture of pottery and wire-drawing machinery and plans expansion. A portion of the plant was recently acquired by the John A. Roebling's Sons Co., manufacturer of wire, cables, etc., to be used in connection with its local works. John W. and Duncan Mackenzie head the new organization.

The Cann & Saul Steel Co., 516 Commerce Street, Philadelphia, manufacturer of steel forgings, pipe flanges and kindred products, has tentative plans for the erection of a one-story addition to its plant at Royersford, Pa., estimated to cost $27,000 including equipment.

Officials of the Pennsylvania Water & Power Co., Holtwood, Pa., are organizing the Holtwood Power Co. to operate local generating plants. The new company will take over and complete the construction of a steam-operated electric generating plant in this district upon which preliminary work has been started. A bond issue of $2,750,000 is being sold, the entire proceeds to be used for construction purposes. J. E. Aldred is chairman of the board of both organizations.

The City Council, Chester, Pa., is considering the installation of electrically-operated pumping equipment in connection with its proposed sewage disposal works estimated to cost $2,500,000 complete, for which plans were authorized by the State Health Department.

The York Mfg. Co., York, Pa., manufacturer of ice and refrigerating machinery, will soon begin the erection of a new one-story foundry at Grantley Station. Work is now in progress on a welding shop at the main works estimated to cost $175,000 with machinery.

The Gwilliam Co., 915 North Front Street, Philadelphia, is in the market for an automatic saw sharpening machine for metal cutting circular saws, and 3 and 5-hp., 220 volt electric motors.

The Huntington Machinery & Supply Co., Wilkes-Barre, Pa., is in the market for several small electrically-driven, self contained hoists, with both single drum and double drums, 12 to 48 in. in diameter and 18 to 48 in. face.

The Union Drawn Steel Co., Beaver Falls, Pa., is inquiring for 200 second hand lockers, 15 x 15 x 15 in., with keylocks or combinations.

New England

BOSTON, July 7.

LOCAL machine tool houses remained closed from July 3 until July 7, consequently the market the past week was quieter than usual. One dealer, however, reports the sale of four large machines to firms in central and western Massachusetts, the most important transactions noted in weeks. The sale of a used Pratt & Whitney vertical grinder and a used La Pointe broaching machine for export to France is one of the outstanding features of the market. It is intimated the French concern will make additional purchases. Although machine tool orders are few and far between, there has been a decided improvement the past week in sentiment among users and several state definitely they will purchase equipment next month. A Maine shop is in the market for a used 24-in. shaper and a used 24-in. planer.

The Locomobile Co. of Bridgeport, Conn., sold more cars the first six months of this year than during the entire year of 1923, and has approximately $500,000 of unfilled business on its books. While many of the other New England makers of automobiles are still working out of financial difficulties, they have made a much better showing so far this year than in 1923. It is believed the industry will not be interested in machine tools to any great extent this year, but it is intimated buying of equipment will be necessary in 1925.

D. A. Sheeham, 92 Grant Street, Lynn, Mass., will erect a one-story, 33 x 53 ft. machine shop. Plans are private.

The Ocean Leather Co., Newark, N. J., contemplates the erection of a one-story, 50 x 100 ft., plant on Railroad Wharf, Hyannis, Mass., for which conveying equipment will be required.

Excavations are under way for a three and four-story automobile service, repair and garage building, 137 x 185 ft., for the Worcester Parking Co., 507 Main Street, Worcester, Mass., to cost $1,000,000 with equipment. John P. Kingston & Son, 507 Main Street, are architects. George M. Wright is president.

The F. B. Webb Mfg. Co., 50 Elm Street, Boston, manufacturer of plumbing equipment and supplies, has plans for a one-story shop, 60 x 100 ft., at Watertown, Mass., estimated to cost $45,000 including equipment.

The Stevens Stearns Motor Car Co., 94 Dover Street, Somerville, Mass., has awarded a general contract to Willis E. Munroe, 8 Bay State Avenue, for a two-story service and repair building, 54 x 70 ft.

The Crane Market

FEW new inquiries for cranes are reported, but a number of awards are about to be made on business that has been pending for some time. On the whole, the crane market is experiencing a fair volume of business. Among current inquiries is one from the Standard Oil Co. of New Jersey, said to be in the market for a 20-ton locomotive crane to handle a 3-cu. yd. bucket for the Eagle works, Jersey City, N. J. The Standard Oil Co. of New Jersey is also reported in the market for several single I-beam hand power cranes. The Fitzgibbons Boiler Co., 47 West Forty-second Street, New York is asking for a 10-ton, 80-ft. span overhead crane. Dwight P. Robinson & Co., New York, have been receiving bids on a 15-ton electric hoist with 25-ft. lift. The Lehigh Valley Railroad, 143 Liberty Street, New York, has revised its inquiry for a 30-ton gantry crane to one of 10-ton capacity. The Long Island Railroad, which will probably delay action on the four 20-ton overhead cranes until August, is reported to have decided on the award of six small hand power cranes. The Pennsylvania Railroad, Philadelphia, is also said to have decided on award of the two gantry cranes, which have been pending for some time. The village of Morrisville, Vt., is reported to have arrived at a decision in the purchase of a 10-ton, 26-ft. 10-in. span hand power crane.

In Boston, Stone & Webster, Inc., has closed bids on a 10-ton crane for the Manchester Light & Traction Co. plant and the Edison Electric Illuminating Co. of Boston has closed on a 25-ton and a 5-ton crane required for a new Massachusetts Avenue plant. The Illinois Power & Light Corporation, Chicago, is in the market for an electric traveling crane for a new power plant at Des Moines, Iowa.

In the Pittsburgh district, following the award of 10 cranes by the National Tube Co., for its Gary tube mill, the Carnegie Steel Co., has closed on six cranes for the Homestead works. Early action is expected on three hoists, six wall cranes and three overhead cranes, asked for by the Westinghouse Air Brake Co., Wilmerding, Pa.

Among recent purchases are:

American Steel Foundries Co., 332 South Michigan Avenue, Chicago, two 5-ton single-leg, motor-driven gantry cranes from the Shaw Electric Crane Co.

Chicago, Burlington & Quincy Railroad Co., Chicago, seven 1-ton to 3-ton electric hoists, for the Galesburg, Ill., shops, from the Shepard Electric Crane & Hoist Co.; one 10-ton, 3-motor overhead crane, for Galesburg shops and one 20-ton, 4-motor gantry crane with 5-ton auxiliary, one 5-ton, 2-motor transfer crane and a 15-ton, 1-motor pillar crane for Harrison Street warehouse, Chicago, from the Whiting Corporation.

Universal Portland Cement Co., Universal, Pa., a 10-ton, 57-ft. span and a 10-ton, 45-ft. span overhead crane from the Pawling & Harnischfeger Co.

Carnegie Steel Co., for its Homestead works, two 15-ton, 68-ft. span, 5-motor soaking pit cranes, two 40-ton, 68-ft. span, 4-motor, cranes with 10-ton auxiliaries, from the Morgan Engineering Co. and two 10-ton, 38-ft. 6-in. span overhead cranes from the Cleveland Crane & Engineering Co.

Pennsylvania Glass & Sand Co., Mapleton, Pa., a 6-ton, 54-ft. 8-in. span, 4-motor crane to handle 2-cu. yd. bucket, from the Shepard Electric Crane & Hoist Co.

Burnham Boiler Co., Lancaster, Pa., a 5-ton, 48-ft. 3½-in. span, 3-motor, crane from the Shepard Electric Crane & Hoist Co.

National Silk & Dyeing Co., Paterson, N. J., three 2-ton, double-hook, special overhead cranes, two for Paterson, N. J. and one for East Allentown, Pa., from the Shepard Electric Crane & Hoist Co.

Utah Copper Co., New York, a 200-ton locomotive hoist for the Bingham & Garfield Railway Co., San Francisco, from the Whiting Corporation.

Standard Oil Co., a 12-ton locomotive crane to handle 1¼-cu. yd. bucket, for the Canton Refinery, Baltimore, Md., from the Orton & Steinbrenner Co.

Erie Railroad, 30 Church Street, New York, a 5-ton hand power crane from an unnamed builder.

Improved Office Partition Co., Elmhurst, N. Y., four 5-ton monorail hoists, hand power from the New Jersey Foundry & Machine Co.

Chesapeake & Ohio Railroad Co., five 25-ton locomotive cranes from the Brown Hoisting Machinery Co.

The O. B. Herlth Co., 272 Tolland Street, East Hartford, Conn., manufacturer of tools and machinery, has plans for a one-story addition, 50 x 100 ft., estimated to cost $42,000. E. L. Morey, 33 Rector Street, is architect.

The Crane Co., 836 South Michigan Avenue, Chicago, has plans for a one-story and basement factory branch and distributing works at Portland, Me., 114 x 117 ft., for which it will soon ask bids on a general contract. Webster & Libby, 11 Exchange Street, Portland, are architects.

The Common Council, Arlington, Mass., will soon break ground for the construction of a one-story municipal general machine and repair shop in conjunction with a two-story fire station at Broadway and Massachusetts Avenue. The entire project will involve $145,000. McNaughton & Robinson, 46 Cornhill Street, Boston, are architects.

The Farmington River Paper Mills, Inc., Windsor 230, Windsor, Conn., incorporated with $50,000 capital stock to take over the business of a bankrupt plant, is interested in receiving bulletins from paper machinery and maintenance material dealers. W. R. Kent is treasurer.

The Rackliffe Brothers Co., Park and Bigelow Streets, New Britain, Conn., is in the market for a steel building, suitable for housing farm machinery, on a plot 38 x 90 ft.

Pittsburgh

PITTSBURGH, July 7.

MACHINE-TOOL orders are not as encouraging as those engaged in the business would desire, but there are inquiries to quote against and day to day sales reach fair-sized proportions. The trade is encouraged by the fact that two or three of the larger lists which have been up for some time are showing signs of renewed life. Now that the cranes have been placed for the Gary tube works of the National Tube Co. and the Universal Portland Cement Co., Universal, Pa., it is expected that the placing of the tools for these plants is not far off. The Westinghouse Electric & Mfg. Co., has not yet begun buying against its quarterly list, but has been a buyer of individual tools not included in the list. Formal inquiry for tools wanted in connection with the new construction work of the Westinghouse Air Brake Co., Wilmerding, Pa., is looked for soon.

Eldridge Knight, Princeton, W. Va., has preliminary plans for the establishment of an armature winding and electrical engineering plant for which small tools and equipment will be required.

Contract has been awarded by the General Electric Co., Schenectady, N. Y., to the Henry Shenk Co., Erie, Pa., for a one-story machine and industrial shop to its Erie works. C. G. Wright is in charge.

The Pennsylvania-Ohio Power & Light Co., a subsidiary of the Pennsylvania-Ohio Edison Co., Sharon, Pa., and Youngstown, Ohio, is disposing of a bond issue of $19,000,000, a portion of the proceeds to be used for extensions and improvements in power plants and system.

Ovens, power equipment, conveying apparatus, etc., will be installed in the new three-story plant to be erected by the Caskey Baking Co., Martinsburg, W. Va., for which plans have been prepared by the McCormick Co., 127 Negley Avenue, Pittsburgh, architect and engineer.

The Guyan Machine Shops, Logan, W. Va., are in the market for a quantity of cable, 1,000,000 cm. and 500,000 cm.

Manual training equipment will be installed in the high school to be erected at Hinton, W. Va., estimated to cost $150,000, in which amount bonds have been voted. It is expected to break ground during the summer. The Hinton Independent School District is in charge.

The Twelfth Street Garage, Wheeling, W. Va., will arrange a list of equipment for its proposed four-story service, repair and garage addition, 85 x 135 ft., estimated to cost $80,000, for which plans have been drawn by C. W. Bates, 77 Twelfth Street, architect. C. A. Vaden is president.

The Common Council, Morgantown, W. Va., is reported to be planning the installation of a pumping station, probably with electrically-operated equipment, in connection with proposed extensions and improvements in the municipal sewerage system, for which a bond issue of $600,000 has been approved. The city engineer will be in charge.

The Motor Car & Truck Co., Huntington, W. Va., has awarded a general contract to the Esker Waugh Co., 926

Eleventh Avenue, for a three-story service, repair and garage building, estimated to cost $125,000 with equipment. Meanor & Handlosher, Professional Building, are architects. E. A. Hatcher is head.

The Board of Education, Wheeling Independent School District, Wheeling, W. Va., is considering the installation of manual training equipment in its proposed three-story Ritchie, school estimated to cost $350,000, for which bids are being received on a general contract until July 23. Charles W. Bates, 77 Twelfth Street, is architect.

Robert Carson, Jr., 306 South Linden Avenue, Pittsburgh, is having plans drawn for a two-story automobile service, repair and garage building, 92 x 100 ft., to cost $50,000. T. E. Cornelius, Magee Building, is architect.

Manual training equipment will be installed in the two-story and basement high school to be erected at Jackson Park, Buckhannon, W. Va., estimated to cost $250,000, for which foundations will be laid at once. Carl Reger, Traction Building, Morgantown, W. Va., is architect.

Chicago

CHICAGO, July 7.

THE first week of July has shown a few indications of better business. The Burlington has closed for an 18-in. engine lathe, a floor grinder, a pipe machine and a 34-in. drill press, all motor-driven, thereby practically disposing of the remainder of its list for Galesburg, Ill. The Pullman Car & Mfg. Co. has placed orders for a 32-in. heavy duty shaper, 24-in. heavy duty shaper, two-spindle drill press, No. 3 universal milling machine, horizontal boring mill and a hack saw, and still has a number of items pending. The Santa Fe has taken no further action against its extensive list, but in view of the fact that the market situation is particularly favorable from a price standpoint, it is believed that orders will be placed within the next few weeks.

Buying by industrial companies is still largely confined to individual machines. The Stewart-Warner Speedometer Corporation, Chicago, and the Boyle Valve Co., Chicago, have each purchased a Heim centerless grinder. The Oil Gear Co., Milwaukee, has closed for a used 42 x 42-in. x 12-ft. planer. The Pawling & Harnischfeger Co., Milwaukee, has also closed for a used planer. The O. D. Jennings Co., Chicago, has placed an order for a Gardner disk grinder. The city of Milwaukee has purchased a large openside planer for its Riverside pumping station. Individual sales of punch presses have been more numerous of late. The final distribution of orders against the extensive local school list will be announced at a meeting of the Chicago Board of Education, July 9.

The Illinois Steel Co., 208 South La Salle Street, Chicago, will erect a one-story ladle repair shop, 69 x 276 ft. and 15 x 46 ft. at 8801-8859 Mackinaw Avenue, South Chicago, to cost $60,000.

The Chicago By-Products Coke Co., 122 South Michigan Avenue, Chicago, has placed contract with the Koppers Co., Pittsburgh, for a three-story gas manufacturing plant, 35 x 100 ft., to cost $125,000.

Clayton Mark & Co., 111 West Washington Street, Chicago, placed a contract for a one-story steel crane runway, a gas producing machine, and coal storage facilities, 23 x 145 ft., at 1901 West Seventy-fourth Street, to cost $26,000.

The Continental Can Co., 4622 West North Avenue, Chicago, has awarded a contract for a one-story boiler-house addition, 40 x 80 ft., to cost $45,000.

The American Toy Vehicle Corporation, 4317 North Western Avenue, Chicago, recently incorporated, has leased a manufacturing plant at the address given. The company is not in the market for any machinery at present. Officers are C. A. Phillips, president; F. E. Houck, secretary and treasurer.

The Nye Tool & Machine Works, 108 North Jefferson Street, Chicago, has purchased 67,000 sq. ft. at 4047 Fullerton Avenue and will erect a one-story factory, containing 30,000 sq. ft. of floor space, to cost $105,000.

The G. & W. Refrigerator Co., Cloquet, Minn., will erect an addition to cost $100,000.

The Apollo Metal Co., LaSalle, Ill., will build a plant addition to increase its factory space and equipment threefold.

The Davis Brothers Motor Co., Marion, Ill., has awarded a general contract to the Peter Cardoni Construction Co., Herrin, Ill., for a two-story addition to its service, repair and garage building, 86 x 160 ft., estimated to cost $100,000 with equipment. Fred and Edward Davis head the company.

The Common Council, Grand Forks, N. D., has preliminary plans for the erection of a municipal electric power plant, estimated to cost $120,000 with machinery It is purposed to install a Diesel engine, 700 kw. generator and accessory apparatus. Charles M. Evanson is city clerk.

The Diamond Steel Products Co., Minneapolis, Minn., has negotiations under way for the purchase of the plant and business of the Mutual Motor Mfg. Co., St. Cloud, Minn., for $125,000. It is also proposed to remove the Minneapolis business to St. Cloud, expanding the latter works to accommodate the increase. It is likely that a new company will be organized to carry out the merger.

The Northern Pacific Railroad Co., St. Paul, Minn., has plans for a one-story steam-operated power plant, 100 x 109 ft., at Brainerd, Minn., to cost more than $350,000 including equipment. H. E. Stevens is chief engineer.

The Grossman Motor Co., Glasgow, Mont., plans the construction of a one-story service and repair building, 90 x 100 ft., on site recently acquired, with foundations to provide for a second story later.

The State Board of Control, State Capitol Building, St. Paul, Minn., will receive bids until July 15 for complete mechanical equipment for an addition to the central steam power and heating plant at the University of Minnesota, Minneapolis, Minn.

The Midwest Refining Co., Denver, Colo., has plans for a new pipe line, about 22 miles, from northern New Mexico to Farmington, Colo., with pumping plants, etc., for service at the refining plant of the Utah Oil & Refining Co.

The extension of a high tension transmission line to surrounding cities and communities and the doubling of the present capacity of its generating plant, at a cost of $150,000, is contemplated by the Mobridge Electric Co., Mobridge, S. D.

Cincinnati

CINCINNATI, July 7.

BUSINESS in machine tools was light the past week. A number of the larger shops were closed for the entire week and several have intimated that unless improvement occurs the shutdown will be for an indefinite period. This condition, however, is not general. A report is current that a manufacturer of machine tools in this district has booked a large order from the Mexican Government, but confirmation is lacking. The automobile industry is expected to furnish orders during the fall in preparation for a busy winter on new models and some quiet buying has already been done by some of the larger companies. Local dealers continue to report a fair volume of orders, with single tool business predominating.

Railroad buying is looked for within the next two weeks, the Sante Fe, Burlington, Norfolk & Western and Southern railroads being expected to place orders. The Peoria & Eastern has been a buyer of both new and used equipment during the week, and will probably do more purchasing. Prospective business includes a list for a machine and forge shop which the Louisville & Nashville will build at Corbin, Ky.

The Niles Tool Works, Co., Hamilton, Ohio, has booked orders for a large number of special machines which will keep its foundry and machine shops busy during the next few months.

The Liberty Machine Tool Co., Hamilton, which recently completed the addition of 100 ft. to the main bay of its shop, has plans for an extension of 140 ft., including side bays. The addition will be of steel and brick. Several new machines which have been contracted for will be installed, but the greater part of the space will be utilized as an assembling floor. A. R. McCann is general manager.

The Louisville & Nashville Railroad, Louisville, Ky., is taking bids for a machine and forge shop at Corbin, Ky., of structural steel and brick. It is understood that equipment for both plants will shortly be inquired for.

The Mersman Brothers Brandts Co., furniture manu-

A GIRDER of impressive size is shown in the photograph reproduced above. This structural member measures 124 ft. long and 8 ft. 4 in. deep and weighs 66 tons. It was fabricated for use in the 125-ton electric traveling crane installation in the turbine room of the Commonwealth Edison Company's Crawford Avenue power station, Chicago. The complete crane with all operating machinery in place weighs 375,000 lb., or 187½ tons. The lift of the crane is 69 ft. and the span 122 ft. 4 in., the latter being unusually long for a crane of large capacity. Two duplicate cranes were furnished, the shipment requiring 18 cars.

facturer, Celina, Ohio, has completed plans for a new boiler house to cost, with equipment, approximately $50,000. It will also build a three-story addition, 67 x 170 ft. Edmund Brandts is general manager.

The U. S. Engineers' Office, Louisville, Ky., will receive sealed proposals until Aug. 18 for constructing and delivering three dipper dredges.

Alexander M. Robinson, Georgetown, Ky., machinery dealer, is in the market for motors, 30 to 40 hp., three-phase, 60-cycle, 220 volts, direct current, with starters, etc., complete.

The Tennessee Electric Power Co., Chattanooga, Tenn., is perfecting arrangements for the purchase of the Cumberland Power Co., Lenoir City Light & Power Co., Maryville Lighting Co., Madisonville Light & Power Co., and the electric properties of the Long Mfg. Co., and the Tellico River Lumber Co. The new owner plans to consolidate the different interests and will make extensions and improvements in a number of the existing plants, including the installation of additional equipment.

Fire, June 28, destroyed a portion of the oil storage and distributing plant of the Central Ohio Oil Co., Columbus, Ohio, with estimated loss of $90,000 including equipment. It is proposed to rebuild.

The Mills Equipment Corporation, Volunteer Life Building, Chattanooga, Tenn., plans the purchase of an industrial locomotive, standard gage, Porter type.

The City Council, Trezevant, Tenn., has preliminary plans for the construction of a municipal light and power house, estimated to cost in excess of $35,000. A bond issue will be arranged.

Milwaukee

MILWAUKEE, July 7.

IN view of the observance of the July 4 holiday, trade in machine tools during the first week of the month was lamentably small, and production likewise descended to the minimum of the year so far. Sentiment is brightening, however, and there is a growing confidence of greater activity beginning this week. General business sentiment has grown more optimistic in the past two or three weeks.

The Ajax Motors Co. of Racine, Wis., was chartered in Wisconsin during the week, with Charles W. Nash, Walter H. Alford and James T. Wilson, principal executives of the Nash Motors Co. and the LaFayette Motors Corporation, Kenosha and Milwaukee, as incorporators. A formal statement by Mr. Nash said the Ajax corporation is organized to take over the title to the manufacturing plant and property formerly belonging to the Mitchell Motors Co. at Racine, and is a subsidiary of the Nash company, which will hold all of the capital stock, namely $3,000,000 of 7 per cent cumulative preferred and 30,000 common shares without par value. Beyond saying that this is a step in the direction of the development of organization to handle the former Mitchell plant, Mr. Nash said nothing relative to the proposed utilization of the works, which when undertaken will place a large requirement of tools and machinery before the trade.

The Davis & Thompson Co., Milwaukee, has been incorporated with a capital stock of $200,000 by Frank M. Davis and John Thompson, who have been doing a partnership business under similar title manufacturing machine tools, principally a continuous milling machine. The plant and offices are at 251 Reed Street. Use is now to be made of a part of the foundry and machine shops at Fifty-seventh Avenue and Mitchell Street, in West Allis, known as the Avery Co., gas engine works, which originally was the gas engine plant founded by Frank M. Davis. A small number of tools are to be purchased for replacement purposes.

The Village Board, Mukwonago, Wis., will close bids July 14 for the construction of a pumping station, 100,000-gal. concrete reservoir and a sewage disposal plant, and three groups of equipment, as follows: Group 1, one belt-driven air compressor and receiver; group 2, one air-lift pump, well top and collector tank; group 3, one centrifugal pump and motor for domestic service and one centrifugal pump and motor for fire service. Robert Cramer, 1105 Vliet Street, Milwaukee, is consulting engineer. E. A. Austin is village clerk.

The William H. Pugh Coal Co., Racine, Wis., plans the replacement of its frame coal handling equipment, badly damaged by storm winds a short time ago, with modern steel bridges, electrically operated, and estimated to cost $100,000. Estimates are now being secured.

The Automatic File & Index Co., Tenth Street and South Broadway, Green Bay, Wis., manufacturer of steel and wood office equipment, is about to name architects to design a shop addition, 90 x 120 ft., one story and part basement, to be used mainly for sheet metal operations. The improvement will cost about $50,000.

The Rundle Mfg. Co., Layton Park, Milwaukee, manufacturer of plumbers' materials and appliances, enameled ware, etc., is taking bids for the construction of a three-story and basement addition, 30 x 50 ft. Henry Held is president and general manager.

A. L. Nichols, Inc., of Nichols, Outagamie County, Wis., has been incorporated with $95,000 capital stock to manufacture automotive equipment specialties. The principals are A. L. Nichols, Hugh H. Nichols and Jacob Hahn, who have been conducting a small shop for several months which will now be materially enlarged.

The Chippewa County Board, Chippewa Falls, Wis., is about to ask bids for enlarging the steam generating plant of the County institutional group, which will require an additional 150 hp. high pressure boiler, a new 80-ft. stack, 150,000-gal. water storage tank, and some miscellaneous pumping equipment. The addition will be 38 x 87 ft., two stories. E. J. Hancock, Eau Claire, is architect. J. R. Harris is county clerk.

The B. F. & H. L. Sweet Co., Fond du Lac, Wis., manufacturer of trailers, motor truck bodies and heavy duty wagons, will erect a two-story factory and warehouse addition, 50 x 180 ft., to replace the damaged portion of its plant resulting from fire on June 27. The loss was estimated at $45,000 and the replacement will cost about $60,000.

Buffalo

BUFFALO, July 7.

BIDS will be asked late in July by the Victor Box & Mill Co., 62 Leslie Street, Buffalo, for its proposed one-story plant, 200 x 300 ft., estimated to cost $100,000 with equipment. The machinery will be electrically operated. Edward Zein, one of the heads of the company, is in charge.

The Rome Gas, Electric Light & Power Co., Rome, N. Y., is disposing of a bond issue of $600,000, a portion of the proceeds to be used for extensions and improvements in power plants and system. The company is affiliated with the Northern New York Utilities, Inc., Watertown, N. Y.

The Lauer & Mack Co., 1400 College Avenue, Niagara Falls, N. Y., is considering the erection of a one-story planing mill and woodworking plant, 50 x 120 ft., designed to replace

a building recently destroyed by fire. It will cost $37,000. The machinery will be electrically operated. E. E. Wilson is one of the heads of the company in charge.

The American Gas & Electric Co., 30 Church Street, New York, is completing negotiations for the purchase of the Binghamton Light, Heat & Power Co., Binghamton, N. Y., and purposes to tie in and consolidate with the Scranton Electric Co., Scranton, Pa., one of its subsidiaries. Extensions will be made in steam generating plant and transmission system. R. E. Breed is chairman of the board of the purchasing company.

The Board of Education, Canton, N. Y., is considering the installation of manual training equipment in the proposed new school estimated to cost $185,000, for which plans are being drawn by D. D. Keiff, Flower Building, Watertown, N. Y., architect.

The Hazlewood Co., Bedford Gardens, Sacket Harbor, N. Y., operating a machine and repair works, plans the installation of a bench planer and other equipment. L. Hazlewood is head.

John L. Allen, 137 Hamlin Road, Buffalo, has taken over a factory at 481 Ellicott Street heretofore used for the manufacture of automobile equipment, and will remodel the structure for an automobile service and repair works.

George Herrick, Fredonia, N. Y., has plans under way for the establishment of an electric motor repair and service shop, for which a small amount of equipment will be required, including lathe, drill press, etc.

St. Louis

ST. LOUIS, July 7.

CONTRACT has been awarded by the Midwest Piping & Supply Co., 1452 South Second Street, St. Louis, to the Fruin-Colnon Construction Co., Merchants Laclede Building, for a one-story addition, 120 x 300 ft., estimated to cost $145,000 with equipment. Klipstein & Rathman, Chemical Building, are architects.

The White Eagle Oil & Refining Co., Federal Bank Building, Kansas City, Mo., with oil refineries at Augusta, Kan.; Fort Worth, Tex., and Casper, Wyo., is disposing of a note issue of $3,000,000, a portion of the proceeds to be used for extensions and improvements. L. L. Marcell is president.

The Botteroff-Giles Co., G. Seeley, 4914 Delmar Boulevard, St. Louis, in charge, will begin the erection of a four-story automobile service, repair and garage building, 100 x 150 ft., estimated to cost $275,000 with equipment.

Manual training equipment will be installed in the proposed high school to be erected at Bartlesville, Okla., estimated to cost $290,000, for which plans are being drawn by J. H. Felt & Co., 802 Grand Avenue Temple Building, Kansas City, Mo.

Thomas Cusack & Co., 515 Loomis Street, Chicago, manufacturers of outdoor electric displays, signs, etc., have awarded a general contract to the McKelvey Construction Co., Title Guarantee Building, St. Louis, for a one-story and basement plant, 100 x 125 ft., at St. Louis, estimated to cost $80,000 with equipment. Zimmerman, Saxe & Zimmerman, 212 East Superior Street, Chicago, are architects.

The Manhattan Oil Co., Fairfax District, Kansas City, Kan., will soon begin the construction of a pipe line from the Greenwood County oil fields to its plant, 140 miles, estimated to cost $1,200,000 including pumping stations and lines.

Manual training equipment will be installed in the three-story and basement high school to be erected at Parsons, Kan., estimated to cost $500,000, for which bids are being asked on a general contract until July 21. T. W. Williamson & Co., Central Bank Building, Topeka, Kan., are architects.

Ovens, power equipment, conveying and other machinery will be installed in the two-story and basement plant to be erected by the Iten Biscuit Co., 1202 Capital Avenue, Omaha, Neb., at Kansas City, Mo., estimated to cost $125,000. A general contract has been awarded to the Duncan-Lynch Construction Co., Mutual Building, Kansas City. O. H. Bormettler is vice-president and general manager.

The Arkansas-Missouri Power Co., Caruthersville, Mo., is arranging for a bond issue of $664,000, the proceeds to be used for the purchase of light and power plants and ice-manufacturing plants in this vicinity and for extensions and additional equipment.

The Board of Education, Coldwater, Kan., has awarded a general contract to Joseph Paul, Hutchinson, Kan., for a one-story and basement manual training building. Mann & Co., Rorabaugh-Wiley Building, Hutchinson, Kan., are architects. K. C. Ehrich is secretary.

The Hutchinson Lumber Co., Tulsa, Okla., has tentative plans for rebuilding of the portion of its plant at 510 South Franklin Street recently destroyed by fire, with loss of $175,000 including equipment and stock.

The McDaniel Screen Door Fly Swat Co., La Belle, Mo., incorporated with capital stock of $20,000 to manufacture specialties, is in the market for wire cloth, Japanned tin, round edge hot-rolled spring steel, 16-gage black iron, spring wire, bolts, screws, etc. The company occupies a leased building, but contemplates building a plant later. A. L. Boone is secretary.

Cleveland

CLEVELAND, July 7.

THERE was little life in the machinery market the past week and the holiday tended to make the dullness more pronounced than in some preceding weeks. Dealers report a few sales but only in single machines. Most of the inquiry was for used machinery. Reconstruction work necessitated by the recent northern Ohio tornado is expected to create some demand in Sandusky where several manufacturing plants were wrecked. No activity is reported in the Detroit territory. In spite of the general dullness there seems to be a better sentiment in the trade and an improvement in orders is looked for this month over June.

The Westinghouse Electric & Mfg. Co. will enlarge its Mansfield, Ohio, works by the erection of two steel buildings, one four stories and the other one story.

The Industrial Machine Co., 1436 East Forty-seventh Street, Cleveland, has placed contract for the erection of a machine shop, 70 x 130 ft.

A sewage disposal plant will be built by the Board of County Commissioners of Lake County, Cleveland. L. J. Spaulding, Court House, Painesville, is clerk of the Board.

The Standard Steel Tube Co., Toledo, Ohio, is in the market for two slightly used 16-in. swagers for immediate delivery. It also is interested in swagers of larger size.

South Atlantic States

BALTIMORE, July 7.

THE Board of Estimate, City Hall, Baltimore, has abandoned plans for the proposed municipal steam power station and has approved a project for enlarging the high pressure pumping station of the fire department. Work will begin at an early date. Additional equipment will be installed, including oil-burning apparatus. The expansion will cost $160,000. Steuart Purcell is chief engineer.

Plans have been filed for a one-story vocational school, 70 x 163 ft., at the proposed high school to be erected on Gwynns Falls Parkway, Baltimore. The entire project will involve $917,000. The Board of Education is in charge. Smith & May, Calvert Building, are architects.

The Howard Refractories Co., Dorsey, Md., is in the market for a quantity of suitable containers for handling fire brick and refractory shapes for export.

The Piedmont Iron Works, Inc., Spartanburg, S. C., recently organized, has acquired a building and will remodel for its proposed plant. H. R. Phillips is president and treasurer.

The Virginia Portland Cement Corporation, National Bank of Commerce Building, Norfolk, Va., operated by the International Cement Corporation, 342 Madison Avenue, New York, is reported to have plans for the erection of a new local cement mill. A power plant will be constructed. The entire plant is estimated to cost approximately $1,000,000 with machinery. The company has property on the James River for raw material supply.

The Samuel Kirk & Sons Co., 106 East Baltimore Street, Baltimore, manufacturer of silverware, metal goods, etc., has plans nearing completion for a one-story factory, 100 x 200 ft., estimated to cost $85,000 including equipment. Richard C. Sandloss, 404 St. Paul Street, is architect.

D. C. Elphinstone, Inc., 408 Continental Building, Baltimore, machinery dealer, is in the market for a 5-kw. steam-electric generating set for lighting; also one hoisting engine and boiler, two or three drums, with swinger and accessory apparatus.

The Public Works Department, Colombo, Ceylon, is interested in a project to construct and operate a hydro-electric power plant on the Kehelgamu Ganga River, in which it is expected to use American machinery. Vice-Consul Mason Turner, Colombo, Ceylon, (Bureau of Foreign and Domestic Commerce), has information regarding the enterprise.

The Washington Railway & Electric Co., Washington, is disposing of a bond issue of $2,496,000, a portion of the proceeds to be used for extensions and improvements.

The Board of District Commissioners, District Building, Washington, has preliminary plans under way for a new three-story school, to be known as the McKinley manual training school, to cost $500,000. A. L. Harris, District Building, is architect.

J. M. Gregory & Co., Hendersonville, N. C., have inquiries out for one steam crane, Thew, Erie or Osgood type, with ¾-yd. bucket.

William A. Conway, 626 Forrest Street, Baltimore, manufacturer of tinplate products, has filed plans for the erection of a three-story building, 40 x 72 ft., for which foundations will be laid at once.

The Common Council, Lattimore, N. C., is considering a issue for the construction of a municipal electric power plant, for which it is expected to have plans drawn at an early date.

Beckerley & Trusler, 614 East Lombard Street, Baltimore, dealers in marine supplies and equipment, has inquiries out for one stiff-leg derrick, about 40 tons capacity.

The Southern Maryland Fertilizer Works, Inc., Waldorf, Charles County, Md., recently organized with a capital of $550,000, plans the operation of a commercial fertilizer plant, to cost about $100,000, including machinery and power equipment. Albert J. Boyle and L. Dorsey Stone, both of Baltimore, head the new organization.

The Board of Education, Charlotte, N. C., plans the installation of manual training equipment in two new junior high schools, for which Lockwood, Greene & Co., Piedmont Building, are architects and engineers. An appropriation of $1,000,000 has been arranged for these and other schools.

Lewter F. Hobbs, Inc., Monticello Avenue, Norfolk, Va., has inquiries out for one locomotive crane, 8-wheel, standard type, 20 tons capacity, double drum.

The Maryland Penitentiary, Baltimore, has awarded a general contract to the Pamfillis Construction Co., 307 North Gay Street, for a one-story foundry, 80 x 240 ft., and one-story power house, to cost $75,000. Theodore W. Peitsch, American Building, is architect. C. L. Painter, 9 North Pleasant Street, is mechanical engineer. Col. Claude B. Sweezy is warden.

The Union Shipbuilding Co., Box 475, Baltimore, is in the market for a steel stiff-leg derrick with sills, capacity 35 tons or over 40 ft. radius.

Detroit

DETROIT, July 7.

CONSTRUCTION is being started by the Edmund & Jones Corporation, Detroit, manufacturer of lighting equipment and other electrical devices for automobiles, on a three-story addition, to cost $400,000 with machinery.

The General Electric Co., Schenectady, N. Y., has awarded a general contract to the H. G. Christman Co., Detroit, for a five-story factory branch and distributing works, 140 x 320 ft., at Detroit, estimated to cost $500,000 with equipment. A machine shop will be installed.

The Ford Motor Co., Detroit, has plans for a new sawmill and woodworking plant, 76 x 260 ft., at Iron Mountain, Mich, for the production of automobile body stock. Cut-off saws and other equipment, the majority electrically-operated, will be installed. The plant will cost close to $100,000 with machinery.

The Consumers' Power Co., Jackson, Mich., has preliminary plans for the erection of a hydroelectric generating station at the County line, Manistee River. A power dam will be constructed.

The Lansing Fuel & Gas Co., Lansing, Mich., is planning for enlargements in the steam power plant at its central generating station and the installation of additional machinery.

The Board of Education, Lansing, Mich., plans the installation of manual training equipment at its proposed two-story junior high school, estimated to cost $450,000, for which preliminary plans are being prepared by J. N. Churchill, Prudden Building, architect.

The Lincoln Washing Machine Co., 6941 Michigan Avenue, Detroit, recently organized with $500,000 capital stock, is the outgrowth of an active company which is planning considerable expansion. Additional space and production capacity are required. Joseph Larkins is one of the principals.

The Forged Seamless Tube Co., 7016 Lisbon Street, Detroit, is inquiring for seamless tube making equipment as follows: Draw benches, 25- and 50-ton capacity; tube pointers, straightening machines, small motor generator set, cut off machines, mill floor trucks, 16-in. engine lathe, drill press and small shaper.

Indiana

INDIANAPOLIS, July 7.

BIDS will soon be asked for the erection of a one-story foundry, 70 x 160 ft., by the William F. Hartig Foundry Co., Evansville, Ind., estimated to cost $25,000, for which plans are being drawn by H. Gilbert Karges, Furniture Building, architect.

The Board of Education, 150 North Meridian Street, Indianapolis, plans the installation of manual training equipment in the new high school for negroes at Twelfth and West Streets, estimated to cost $500,000. Plans are being drawn by Vonnegut, Bohn & Miller, Indiana Trust Building, architects.

A one-story power plant will be erected by the Indianapolis Candy Co., 225-27 East Maryland Street, Indianapolis, at its proposed four-story and basement factory, 85 x 100 ft., estimated to cost $100,000. A radial brick stack, 3½ ft. diameter and 125 ft. high will be built. Ovens, conveying machinery, etc., will be installed. Bids will be asked about the middle of July. The Russell N. Edwards Co., Union Trust Building, is architect.

The Mee-Oakes Co., Indianapolis, has perfected plans for a new factory at 19-29 West South Street, to specialize in motor armature winding and other electric power equipment work.

Manual training equipment will be installed in the new two-story and basement high and grade school to be erected at Ossian, Ind., estimated to cost $125,000, for which foundations will soon be laid. Everett Brown, Studebaker Bank Building, Bluffton, Ind., is architect.

The Northern Indiana Gas & Electric Co., Hammond, Ind., is disposing of a note issue of $4,500,000, a portion of the proceeds to be used for extensions in power plants and system. Samuel Insull is president.

Motors, controls, conveying machinery and other mechanical equipment will be installed in the two and three-story plant to be erected at 628 North Illinois Street, Indianapolis, by the Thornton-Levey Printing Co., Pennsylvania and Maryland Streets, estimated to cost $105,000, for which foundations will be laid at once. Thornton & Rodecker, 628 North Illinois Street, are architects.

The Crawfordsville Foundry, Crawfordsville, Ind., has decided to enlarge its plant and build an additional cupola.

Gulf States

BIRMINGHAM, July 7.

PLANS are being arranged by the Dallas Packing Co., 4903 Worth Street, Dallas, Tex., for the installation of an ice-manufacturing and refrigerating plant at its proposed two-story and basement packing house, 100 x 120 ft., for which equipment will cost approximately $30,000. Charles Kay is construction engineer. Machinery proposals will be handled by B. P. Smith, president.

The Nash-McLarty Motor Co., Commerce and Pearl Streets, Dallas, Tex., local representative for the Nash and Lafayette automobiles, will operate a car-rebuilding and parts plant at 2110-12 Commerce Street, occupying a three-story and basement building, approximating 17,500 sq. ft. The mechanical department will be in charge of R. Sharpe. F. E. McLarty is president.

The Daytona Public Service Co., Daytona, Fla., has plans for extensions in its power plant, to include the installation of a 2500-kw. turbo-generator and auxiliary equipment. Enlargements will also be made in the ice-manufacturing plant.

The City Council, Timpson, Tex., is said to be considering the installation of centrifugal pumping equipment in connection with extensions in the municipal waterworks, for which bonds are being arranged.

The Indian River Fertilizer Co., Vero, Fla., recently organized with a capital of $150,000, will begin the erection of a one-story plant. Contract for a portion of the machinery has been let to the Atlantic Utility Works, East Point, Ga., and other awards will soon be made. Howard F. Smith is president.

The Powell Oil Mill Co., Bastrop, Tex., plans for the early rebuilding of the portion of its cottonseed oil mill recently destroyed by fire with loss estimated in excess of $100,000, including machinery.

Ovens, power equipment, conveying and other machinery will be installed in the new plant, 70 x 235 ft., to be erected by the Scheppa Bakery Co., Dallas, Tex., estimated to cost $60,000.

The Seminole Ice Delivery Co., Miami, Fla., recently organized, is reported to be contemplating the erection of an ice-manufacturing plant. John T. Wisdom, Miami, is president.

The Clopton Planing Mill, 213 East Fourth Street, Corsicana, Tex., will begin the erection of a new planing mill and woodworking plant to cost about $80,000, to replace a works recently destroyed by fire. It is understood that the majority of the equipment will be electrically-operated.

The Board of Education, Lamesa, Tex., is considering the installation of a manual training department in the proposed new high school, estimated to cost $115,000, for which foundations will soon be laid. Peters & Haynes, Lubbock, Tex., are architects.

The Crane Co., 836 South Michigan Avenue, Chicago, has awarded a general contract to R. J. Gillespie, Jacksonville, Fla., for a factory branch and distributing works at Tampa, Fla., to cost approximately $75,000. F. J. Kennard & Son, Tampa, are architects.

The Common Council, Lufkin, Tex., is considering the installation of centrifugal pumping equipment in connection with proposed extensions and improvements in the municipal waterworks, estimated to cost $75,000. A bond issue is being arranged. C. N. Humason is city manager.

Power equipment, ovens, conveying machinery, etc., will be installed in the plant of the Seybold Baking Co., Miami, Fla., in connection with proposed enlargements to cost approximately $65,000, of which amount at least $35,000 will be expended for equipment.

The Arkansas Pass Compress Co., San Juan, Tex., will build a one-story steam power plant in connection with a new cotton compressing works, estimated to cost $80,000. The installation will include two or three 125-hp. boilers and auxiliary equipment. J. K. Cain is president.

The Conal Power Co., San Antonio, Tex., recently organized as a subsidiary of the San Antonio Public Service Co., San Antonio, Tex., is selecting a site on the Guadalupe River, near New Braunfels, Tex., for the construction of a hydroelectric generating plant, estimated to cost $500,000, with power dam, etc. W. B. Tuttle is president of both organizations.

The United Lead & Zinc Corporation, Dallas, Tex., organized with $80,000 capital stock to mine lead and zinc, plans the construction of a mill in Newton County where the company has about 700 acres. No contracts have been let to date. J. H. Darby is president and J. G. Oliver, secretary-treasurer.

The Thomasville Iron Works, Thomasville, Ga., is in the market for an electric steel furnace, with pressure blower for 36-in. cupola. Good second-hand furnace is preferred.

The Gulf Machinery Mfg. Co., Houston, Tex., recently organized to manufacture machinery, will manufacture a patented band saw for the paper jobbing industry. It is interested in buying small band saw wheels, narrow band saws, malleable cast hand wheels, worm gears and grooved pulleys. George W. Dicks is president and J. M. Hacker, secretary.

The D & S Bacon Slicer Mfg. Co., Booneville, Miss., recently incorporated to manufacture slicing machines, will let contracts for parts which are to be stamped from No. 14 gage bright steel and nickel plate. It will operate an assembling plant. W. W. Sadler is president.

Stone & Webster, Inc., 147 Milk Street, Boston, Mass., which through its subsidiary, the El Paso Electric Co., El Paso, Tex., has acquired the plant of the Las Cruces Electric Light & Ice Co., Las Cruces, N. M., for $275,000, has plans under way for immediate improvements and extensions estimated to cost $150,000. Further developments, involving an expenditure of $500,000 are contemplated later.

Pacific Coast

SAN FRANCISCO, July 7.

BIDS will be asked at once by the Western Pacific Railroad Co., Poplar and Sacramento Streets, Stockton, Cal., for an engine house to cost $70,000, and machine shop, $40,000. The engineering department is in charge.

The Pasadena Ice Co., El Monte, Cal., has preliminary plans for a new one-story ice-manufacturing plant to cost $40,000 with equipment. Headquarters of the company are at Pasedena, Cal. The El Monte Chamber of Commerce is interested in the project.

Plans will be filed by the American Steel & Wire Co., Folsom and Sixteenth Streets, San Francisco, for a one-story addition, estimated to cost $35,000.

The Vance Lumber Co., Seattle, is taking bids on a three-story and basement mill, 115 x 120 ft., estimated to cost $100,000 with equipment. Other units will be erected later, with total cost of $450,000. V. W. Voorhees, Eitel Building, is architect and engineer.

The Utah-Idaho Sugar Co., Salt Lake City, Utah, will soon begin the erection of a new beet sugar refining plant at Missoula, Mont., to cost $200,000 with equipment.

The Western Electric Co., Hawthorne, Ill., will occupy a new three-story building, 85 x 130 ft., to be erected at Seattle, Wash., for a new factory branch and distributing plant, estimated to cost $150,000. Local offices of the company are at 84 Marion Street.

The Carmichael Irrigation District, Carmichael, Cal., contemplates the construction of a new pumping plant, with electrically-operated equipment.

The Common Council, Modesto, Cal., has authorized plans for the installation of additional pumping machinery at the municipal waterworks in connection with extensions and betterments. F. W. McCarton is city engineer.

Paul Beygrau, Santa Rosa, Cal., and associates, are perfecting plans for the erection of a new factory along the line of the Southern Pacific Railroad Co., for the manufacture of roofing tile and kindred products. The cost is estimated at $35,000 with machinery.

The Montebello High School District, Montebello, Cal., has awarded a general contract to the Etherton Construction Co., Stack Building, Los Angeles, for a one-story vocational shop building at the local high school, for which foundations will be laid at once. Jeffery & Schaefer, Kerckhoff Building, Los Angeles, are architects.

The Common Council, Port Angeles, Wash., is said to be planning the installation of centrifugal pumping equipment in connection with proposed extensions and improvements in the municipal waterworks, for which a bond issue of $625,000 is under consideration.

Canada

TORONTO, July 7.

MACHINE tool sales for the month of June were hardly up to expectations, chiefly on account of the strike of postal workers from June 18 to the 30th which resulted in a practical shutting off of all mail order business. The first two weeks of the month, however, showed improvement over the corresponding period of the previous month and it is the opinion that much of the business that might have been placed has only been deferred. Inquiries now coming in are of the variety that usually turn into sales and are chiefly for replacement purposes. Some inquiries are also being received for equipment on new works account, but lists are mostly for small numbers of tools.

The demand for rebuilt and second hand tools is becoming more active.

Summerside, P. E. I., will erect an electric light and power plant, to be equipped with two fuel oil units of 100 hp. and 200 hp., respectively; direct connected to 60 cycle generators and exciters.

The Canadian Laundry Machinery Co., Sterling Road, Toronto, will build an addition to cost $20,000.

The Southern Canada Power Co., Montreal, has plans for the construction of a concrete dam 1000 ft. long and power house, 25 x 106 ft., to contain six turbine generator units. G. R. Rollegen, Montreal, is company engineer.

The Foundation Co., Ltd., Montreal, has started work on a $1,500,000 power development project and dam at Hemming's Falls, Que., for the Southern Canada Power Co., Montreal.

The Town Council, Lachine, Que., will purchase two 3000 Imperial gal. pumps, estimated to cost $25,600. A. Laframboise is town engineer.

The Canada Wood Products Co., St. Thomas, Ont., will build new factory to cost $50,000. Darrach & Findlay are architects. Equipment has not been purchased.

The factory of the Wilson Scale & Machinery Co., Toronto, was damaged by fire with a loss of $35,000.

The Doherty Stove Co., manufacturer of hot water heating equipment, electric stoves, etc., contemplates the erection of a plant at Sarnia, Ont., to cost $150,000.

It is reported that Charles Walmsley & Co., Montreal, have the general contract for rebuilding and supplying equipment for the E. B. Eddy Co. sulphite pulp mill at Hull, Que., at a cost of $3,000,000. A large part of this sum will be spent on machinery and equipment. The order will keep the Walmsley plant busy from four to five months.

W. W. Hiltz, Chairman of the Board of Control, Toronto, Ont., will receive bids until August 19, for the supply and installation of one 400-hp. steam turbine, etc. Plans, specifications and form of tender may be obtained from Works Department, Room 12, City Hall, Toronto.

Plans of New Companies

The Chainless Knitting Machine Corporation, New York, has been incorporated with capital stock of $50,000 to manufacture a new type of machine for knitting mills. It is looking for a manufacturing location, preferably in Brooklyn, and expects to be in production in five or six months. Temporary address is in care of J. H. Dubi, 15 Moore Street, who is one of the directors.

The Admiration Watch Corporation, care of B. I. Cantor, 299 Broadway, New York, has been incorporated with $200,000 capital stock to manufacture watch mechanisms. Organization matters are being worked out and nothing definite has been decided regarding operations.

The Odderstol Engineering Corporation, New York, incorporated with $20,000 capital stock, will act as a holding company for patents on mechanical products. No manufacturing will be done directly by the company itself. Incorporators are G. T. Gall and J. C. Warren. Address in care of R. E. Weldon, 1475 Broadway.

The Acme Air Motor Corporation, New York, has been incorporated with 640 shares of capital stock, no par value, to manufacture air motors and parts. It is in the preliminary stages of organization and plans are as yet indefinite. Mr. Jacobsen, care of Wise & Seiligsberg, 15 William Street, is one of the principals.

The R. W. & B. Mfg. Corporation, 17 West Sixtieth Street, New York, has been incorporated with $50,000 capital stock to take over an established business in the manufacture of steel needles for talking machines. The same line will be continued and operations are now under way.

The Erie Steel Corporation, New York, incorporated with $20,000 capital stock to manufacture iron and steel products, has not completed its plants, but it is unlikely that manufacturing will be undertaken at this time. E. S. Higgins, J. A. O. Franks and J. E. Wickham are the incorporators.

The Limited Metal Sales Corporation, care of L. B. Boudin, 110 West Fortieth Street, New York, has been incorporated with $100,000 capital stock, and will act as manufacturers' agent for copper, brass and other metal products. C. Loewenthal, L. Binder and Z. H. Danziger are the incorporators. Officers will be elected next week and permanent offices established.

The Barnett Sheet Metal Works, Inc., 120 South Fourteenth Street, Newark, N. J., recently organized, has taken over the business and properties of H. F. Barnett, who has conducted a sheet metal works during the last eight years. The company will specialize in heating and ventilating and plans to expand the business. H. F. Barnett is president.

The Menorah Electric Fixture Corporation, 108 West Fourteenth Street, New York, has been organized to assemble electrical fixtures for distribution among builders. J. Levenstein heads the company.

G. W. Carstens & Co., care of S. G. Nissenson, 2 Rector Street, New York, have been organized with nominal capital to manufacture electric signs. Business will be conducted on a small scale.

The Davenport Foundry Corporation, Stamford, Conn., incorporated with $300,000 capital stock, will engage in general foundry practice and will deal in all kinds of castings. William J. Buckley, S. F. Primrose and A. M. Deery, all of Bridgeport, Conn., are the incorporators.

The Winston-Salem Battery Co., Winston-Salem, N. C., has been organized with $50,000 capital stock to engage in general electrical work.

The Pittsburgh Tube Co., Pittsburgh, has been incorporated with $350,000 capital stock, Delaware laws, as a reorganization of the original company by that name. It will specialize in light weight tubing of small sizes and, with increased facilities, will endeavor to enter the field of heavy weight tubing in limited sizes. C. C. Law is treasurer.

The Elliott-Gilpin Radio Corporation, 433 Monticello Avenue, Norfolk, Va., has been organized to act as distributor of general radio equipment. Milton T. Elliott is president and L. H. Gilpin is manager.

The Seneca Camera Mfg. Co., Rochester, N. Y., has been organized with capital stock of $25,000 to manufacture cameras and photographic materials. It has taken over a going business and will continue along established lines. B. MacCallum heads the company.

The Weatherell Motor Cycle & Car Co., 19-21 Dover Green, Dover, Del., has been organized with $1,000,000 capital stock, Delaware laws, to take over a plant in London, England, in operation for several years in this line, and to manufacture a similar line in this country. It is probable that manufacturing here will be done by contract. Reginald Weatherell is president.

The Florida Machine Works, Jacksonville, Fla., recently organized, has completed a new plant to manufacture iron and brass castings and forgings, and has applied for a State charter under the name Florida Machine & Foundry Co. Four buildings have been erected on an eight-acre plot; a machine shop, 60 x 140 ft., steel foundry, 85 x 212 ft., steel pattern shop and storage, 60 x 120 ft., and a steel warehouse, 60 x 120 ft. A steel furnace has been installed. F. D. Russell is president.

W. P. Neville & Co., Inc., 662 Brook Building, Detroit, has been organized to deal in iron and steel products.

The Louden Tool Co., Kittanning, Pa., recently incorporated with $300,000 capital stock, will continue a business established for several years in the manufacture of drilling tools and oil and gas well supplies. W. J. Louden is one of the heads.

The Irons & Russell Co., 95 Chestnut Street, Providence, R. I., incorporated with $500,000 capital stock, will continue a business established for 63 years in the manufacture of metal insignias, buttons, charms, etc. Charles S. Irons is president.

The Elmwood Iron & Metal Co., Inc., 1501-23 North C Street, Elmwood, Ind., has been organized with $20,000 capital stock and will deal in scrap iron, metals, etc. It has suitable quarters with 10,000 sq. ft. of storage room and has installed necessary equipment. A. Levi heads the company.

Samuel Smith & Sons Co., Paterson, N. J., recently incorporated to manufacture steam boilers, vulcanizers, steam boxes, tanks, etc., will continue a business established for 81 years in this line. Warren R. Smith is one of the heads.

The Hardware Specialties Mfg. Co., Bruce Avenue, Stratford, Conn., has been organized to manufacture springs, platforms and frames for toys, and to make other metal specialties. Operations are conducted in the company's plant. Samuel Zimmer is one of the heads.

The American Renoleo Co., York, Pa., has been organized to manufacture a boiler metal preservative and scale remover, known as Renoleo. Charles H. Bear is president and H. E. Frank, secretary. Factory and general offices are at York.

The General Refrigerator Line, Marquette Building, Chicago, has been organized with $60,000 capital stock to operate a line of refrigerator cars.

The West Coast Engine Co., 127 South New Hampshire Street, Los Angeles, Cal., has been organized to represent manufacturers of marine and stationary internal combustion engines. It will represent the Wolverine Motor Works of Bridgeport, Conn., and plans to add other lines. A. E. Collins is one of the principals.

The Everhot Electric & Mfg. Co., 615 I. N. Van Nuys Building, Los Angeles, Cal., has been organized with $50,000 capital stock to manufacture water heaters, having acquired the business of the Pacific Mfg. & Electric Co. John M. Morris is vice-president.

The Standard Casket Hardware Co., Greensburg, Ind., has been organized to manufacture metal casket hardware and casket trimmings.

Troy Foundry & Machine Co. Remaining in Business

A plan of reorganization of the affairs of the Troy Foundry & Machine Co., Inc., Port Henry, N. Y., was prepared and submitted by the creditors' reorganization committee on April 15. This plan has received the approval of the trustee of the bondholders, and an overwhelming majority of creditors and stockholders. It provides for "additional resources for the reorganized company and for a managament which will be skilled, competent and independent."

On June 2, 1924, the creditors' reorganization committee, A. E. Hodgkins, chairman, applied for the sale of the assets and properties of the company, so that the receivership might be terminated, and the affairs of the company reorganized. The sale which the Court ordered does not mean that the company is going out of business. "On the contrary, it is intended to be simply a necessary legal step in the reorganization of the properties. The business will go on as usual despite the sale, and the business community can go on doing business with the company as formerly, because it is our plan to take over the properties on the sale thereof from the receivers, and operate them with additional resources and independent management."

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.34c.
Swedish charcoal iron bars, base	6.75c. to 7.00c.
Soft steel bars, base price	3.34c.
Hoops, base price	4.59c.
Bands, base price	4.09c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.44c.
Channels, angles and tees under 3 in. x ¼ in., base	3.34c.
Steel plates, ¼ in. and heavier	3.44c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.35c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.60c.
Toe-calk, ½ x ⅜ in. and larger	4.30c.
Cold-rolled strip, soft and quarter hard	7.50c. to 8.50c.
Open-hearth, spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds	4.25c.
Square, flats and hex	4.75c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	4.14c.
No. 12	4.19c.
No. 14	4.24c.
No. 16	4.34c.

Box Annealed—Black

	Soft Steel C. R., One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	4.45c. to 4.70c.	.....
Nos. 22 and 24	4.60c. to 4.85c.	5.10c.
No. 26	4.65c. to 4.90c.	5.15c.
No. 28*	4.75c. to 5.00c.	5.25c.
No. 30	4.95c. to 5.20c.	.....

Galvanized

	Per Lb.
No. 14	4.85c. to 5.10c.
No. 16	5.00c. to 5.25c.
Nos. 18 and 20	5.15c. to 5.40c.
Nos. 22 and 24	5.30c. to 5.55c.
No. 26	5.45c. to 5.70c.
No. 28*	5.75c. to 6.00c.
No. 30	6.25c. to 6.50c.

*No. 28 and lighter, 36 in. wide, 20c. higher.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
⅛ in. Butt	—41	—24	⅛ in. Butt	— 4	+19
¼ in. Butt	—46	—32	¼ in. Butt	—11	+ 9
1-3 in. Butt	—48	—34	1-1½ in. Butt.	—14	+ 6
2½-6 in. Lap.	—44	—30	2 in. Lap	— 5	+14
7-8 in. Lap	—41	—11	2½-6 in. Lap.	— 9	+ 9
9-12 in. Lap	—34	— 6	7-12 in. Lap	— 3	+16

Bolts and Screws

Machine bolts, cut thread, 50 to 60 per cent off list

Carriage bolts, cut thread, 40 to 40, 10 and 10 per cent off list

Coach screws, 50 and 10 to 60 per cent off list

Wood screws, flat head iron, 75, 20 and 10 per cent off list

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER	Per Lb.
Bright, basic	4.25c. to 4.50c.
Annealed soft	4.50c. to 4.75c.
Galvanized annealed	5.15c. to 5.40c.
Coppered basic	5.15c. to 5.40c.
Tinned soft Bessemer	6.15c. to 6.40c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	16¼c. to 17¼c.
High brass wire	16¾c. to 17¾c.
Brass rods	14 c. to 15 c.
Brass tube, brazed	24¼c. to 25¼c.
Brass tube, seamless	20½c. to 21½c.
Copper tube, seamless	21¾c. to 22¾c.

Copper Sheets

Sheet copper, hot rolled, 19½c. to 20c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin Grade "AAA" Charcoal 14x20	Bright Tin Grade "A" Charcoal 14x20	Coke—14 x 20 Prime	Coke—14 x 20 Seconds
		80 lb.	$6.55	$6.30
		90 lb.	6.65	6.40
		100 lb.	6.75	6.50
IC	$11.75	$9.50	IC	7.00	6.75
IX	13.25	11.50	IX	8.25	8.00
IXX	14.50	12.50	IXX	9.50	9.25
IXXX	15.50	13.75	IXXX	10.75	10.50
IXXXX	16.50	14.75	IXXXX	12.00	10.75

Terne Plates

8 lb. coating, 14 x 20

100 lb	$7.00 to $8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire door stock	9.00 to 10.00

Tin

Straits, pig	46c.
Bar	48c. to 53c.

Copper

Lake ingot	16 c.
Electrolytic	15½c.
Casting	14½c.

Spelter and Sheet Zinc

Western Spelter	7½c.
Sheet zinc, No. 9 base, casks	10½c. open 11¼c.

Lead and Solder*

American pig lead	8½c. to 9c.
Bar lead	11c. to 12c.
Solder, ½ and ½ guaranteed	33¼c.
No. 1 solder	31¼c.
Refined solder	27¼c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c. to 90c.
Commercial grade, per lb.	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	10½c. to 11c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.	36c.

Old Metals

The market is unsettled and business is quiet. Dealers' buying prices are nominally as follows:

	Cents Per Lb.
Copper, heavy crucible	10.50
Copper, heavy wire	10.00
Copper, light bottoms	8.25
Brass, heavy	6.00
Brass, light	5.00
Heavy machine composition	7.50
No. 1 yellow brass turnings	6.50
No. 1 red brass or composition turnings	7.50
Lead, heavy	5.75
Lead, tea	4.25
Zinc	3.50
Cast aluminum	14.50
Sheet aluminum	14.50